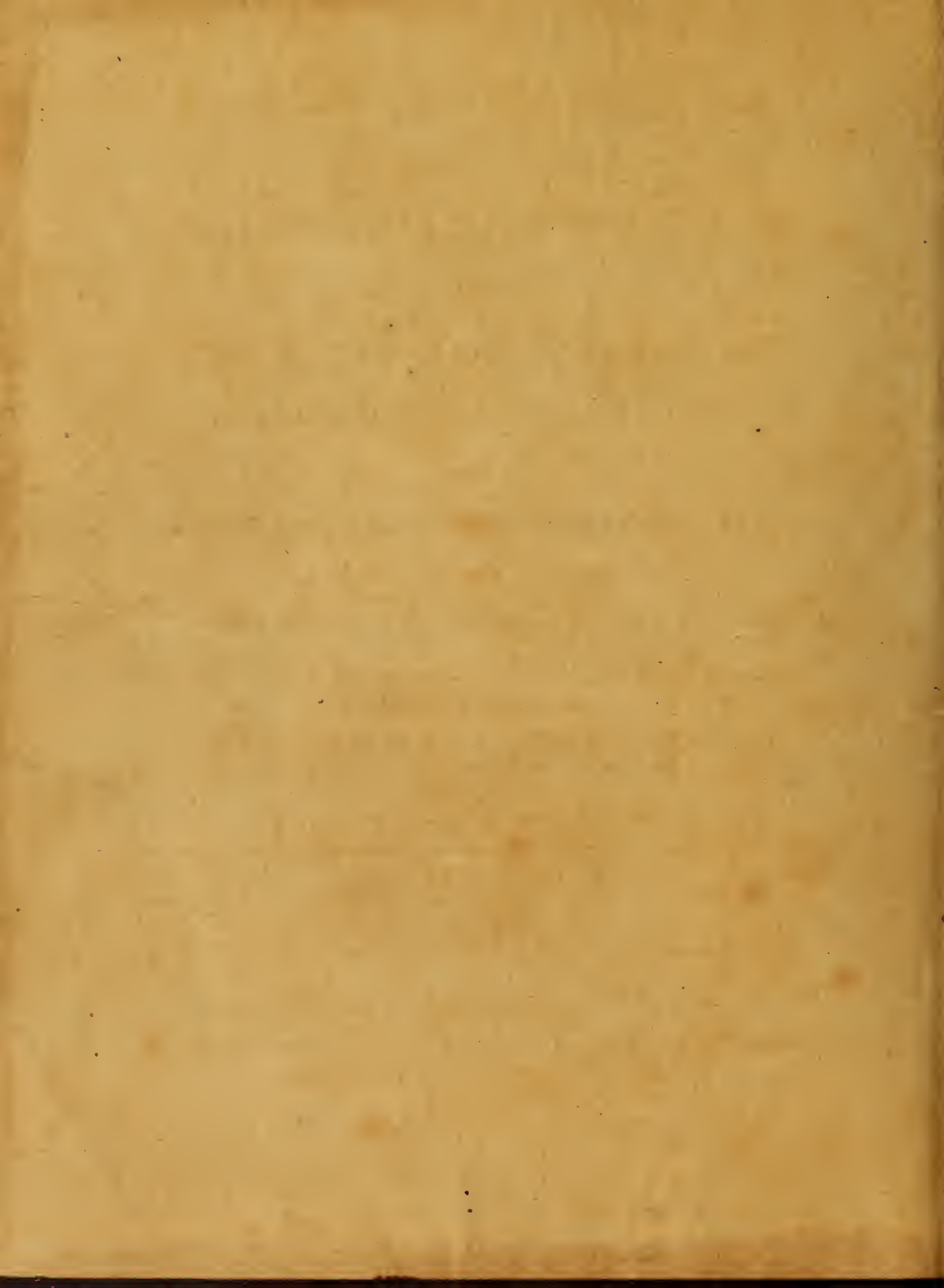


Jc  
Cranford,  
M.D.







L E C T U R E S  
O N T H E  
M A T E R I A M E D I C A :

C O N T A I N I N G  
The N A T U R A L H I S T O R Y of D R U G S,  
T H E I R V I R T U E S A N D D O S E S :

A L S O  
D I R E C T I O N S for the Study of the M A T E R I A M E D I C A ;

A N D  
A n A P P E N D I X on the M E T H O D of P R E S C R I B I N G .

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Published from the M A N U S C R I P T of  
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P r o f e s s o r of B O T A N Y and the M A T E R I A M E D I C A in the U n i v e r s i t y of  
E D I N B U R G H ,  
By J O H N H O P E , M . D . P r o f e s s o r of M E D I C I N E and B O T A N Y in that U n i v e r s i t y .

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I N T W O V O L U M E S .

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V O L . I .

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M . D C C . L X X .



15787





T O

Sir JOHN PRINGLE, Baronet,

PHYSICIAN TO HER MAJESTY, &c.

A N D T O

JOHN FOTHERGILL, M.D. F.R.S.

Men eminent for their LEARNING, and Abilities in their  
PROFESSION;

T H I S      W O R K

Of an AUTHOR whose Merits they are well acquainted with,

Is with the utmost Respect Inscribed

B Y

Their obedient humble Servant,

Edinburgh,  
April 12. 1770.

JOHN HOPE.

THE HISTORY OF THE

REIGN OF

CHARLES

THE FIRST

OF GREAT BRITAIN

AND

IRELAND

FROM THE YEAR 1625 TO 1685

BY JOHN HUME

ESQ.

OF THE BARR

AT BARR

## A D V E R T I S E M E N T.

**T**H E Lectures here offered to the Publick are printed from Dr. ALSTON'S Manuscript-Copy, finished for the press not long before his death. They contain not only the substance of whatever has been said on this subject by the most eminent writers on the *Materia Medica*, but likewise the result of his own observations and experience during the course of above forty years employed indefatigably in the study of Botany and the *Materia Medica*, in teaching, and in experiments. It appears that he was appointed Super-intendant of the Royal Garden at Edinburgh before the year 1716. He studied at Leyden under the great BOERHAAVE, and other eminent Professors in that University. On his return he began to read Lectures in Botany and the *Materia Medica*, and some years after was made Professor of Botany and the *Materia Medica* in the University of Edinburgh. He contributed his share in raising its reputation to the degree of eminence it now bears.

As a man, he was candid, upright, and sincere, learned in his profession, and humane; as a Professor, communicative, and knowing no greater pleasure than to form the minds of his pupils in such a manner as to render them able in their profession, and useful members of society.

In

In his Lectures he exhibited such specimens of the *Materia Medica* as seemed most conducive to instruct his hearers in the choice of what was good; pointing out with great care all the usual arts of sophistification.

But the Lectures themselves will best delineate his abilities as a teacher; and the pains he had taken to distinguish truth from falsehood before he proposed his sentiments to his audience.

He was an able Botanist, as that study was his delight. If he admired RAY, TOURNEFORT, and BOERHAAVE, if he had formed his method upon the best part of the systems of these great men, it ought not to be wondered at, if in the decline of life, he looked coldly upon the Sexual system of the great LINNÆUS.

He published several pieces, which were well received. His *Account of the good Effects of Tin- filings as an Anthelmintic*, is a very valuable piece of information: his *Dissertation on Opium* was very well received. They were published in the *Medical Essays* by a Society at Edinburgh.

His experiments on Lime-water added much light to what had been advanced on this subject: they were many of them new; and his conclusions for the most part decisive.

I forbear to mention other particulars; to his pupils, who were numerous, and esteemed him highly, they will be unnecessary, and to them I appeal.

One



One thing however it may not be improper to mention, in regard to this publication, which is, that it was thought better to print the work, as the Author knew it, than to attempt any refinements in the language. If he is in some places prolix, let it be considered that in his Lectures he thought himself speaking to all capacities; and that clearness was under these circumstances superior to elegance of expression.

With respect to his family, the following account is all that we have been able to collect, viz.

Mr. ALSTON, of Eddlewood, a gentleman of small estate in the west of Scotland, related to the noble family of HAMILTON, studied physic, and thereafter travelled with several gentlemen; after which he retired to his estate, preferring the ease and quiet of retirement to the hurry and bustle of practice.

Upon this Gentleman's death the Dutches of HAMILTON took charge of his son CHARLES, Author of the following work, who was then at the University of Glasgow, and applying with great assiduity to his studies.

The Dutches was desirous to have him bred to the Law; but his strong taste for Botany, and love for the study of Physic, convinced her Grace it would be fruitless to urge him so much against his inclination.

In the year 1716 Mr. CHARLES ALSTON gave himself up entirely to the study of Medicine and Botany, and soon

soon after, though somewhat advanced in life\*, went over to Leyden, to study under BOERHAAVE; where he remained between two and three years, and with his own hand wrote copies of the Lectures of the several medical Professors; and it was there he contracted with his after colleague, the celebrated Dr. MONRO, a strict friendship, which continued all the days of their lives.

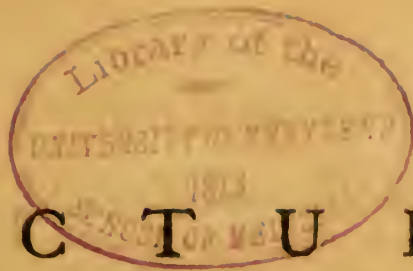
In 1720 he began to read Lectures on Botany and the *Materia Medica*. (Vide *Comment. Lips.* Vol. XI. p. 556.)

His first wife was ROBINA, daughter of ——— LOCKHART, Esq; of Lee, by whom he had one daughter, who is now living. He again married BETHIA, daughter of ——— BIRNIE, Esq; of Broomhill, who bore him no children. He was born in the year 1683, and died the 22d of November 1760, in the 77th year of his age; having been Professor of Botany and the *Materia Medica* during the last twenty years of his life.

\* He was then about thirty-three years old, having been born 1683.

Edinburgh,  
April 12, 1770.

JOHN HOPE.



# LECTURES

ON THE

## MATERIA MEDICA.

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### LECTURE I.

#### INTRODUCTION.

**T**HAT the knowledge of simples is absolutely necessary for every one who designs to make physic or pharmacy his profession, will readily be granted, and cannot be denied : but that, in order to it, colleges are still wanted in an age favoured with so many books on the subject as this is, may perhaps be doubted by some, and appear a paradox to others. Were the virtues (to say nothing of the history) of simples sufficiently explained by any writers on the subject, there might be some foundation for such suspicions ; but this is not the case. There are indeed a multitude of treatises, not only on the Materia Medica in general, but also almost on every particular simple.

How many on mercury, iron, antimony ; on the balsamum, cortex, opium ; on the vipera, bezoar, moschus, and hundreds of others, you may find named in Van-Der-Linden, Seguius, &c. by far too many for any one to peruse, though he should read nothing else all his days. But have we not accurate and concise histories of simples by the very learned Geoffroy, Cartheuser, Lewis, &c ? There are in these many useful observations ; and I could wish every one of you had carefully perused them, that you might be able to judge how defective they are in many instances. One of the latest authors that I have seen on the subject is Dr. Lewis, whom I shall hereafter commend : yet even he *quandoque dormitat*. Ex. Gr. “ The water should be poured slowly  
“ upon the lime, otherwise a kind of muddy substance forms upon the outside,  
“ which defends it from the action of the menstruum. This liquor should  
“ be set in a cool place, and not kept too long ; for on long standing, great  
“ part of what the water had taken up from the lime will be separated in  
“ form of a fine white cream. The change produced by this process is very  
VOL. I. B “ re-



“ remarkable : notwithstanding the extreme acrimony of the quick-lime itself, neither the part which the water extracts, nor that which is left behind, nor the vapour which exhales, have any considerable acrimony : the remaining lime is almost insipid ; the solution has only a rough drying taste ; the vapour proved almost merely aqueous, very slightly alkaliescent. Tho’ quick-lime exposed to the strongest fire that our furnaces are capable of giving, if fully calcined, at first undergoes no diminution at all of weight ; yet the part which water dissolves, when thus separated from the rest, totally exhales by a heat not very strong.” *N. Disp.* p. 397. *Quot hallucinationes in re maxime oculis obvia !*

This alone is sufficient to recommend such exercises as I have undertaken, and will always be so, were it only to put beginners on a right method of reading proper authors ; to prevent their mispending precious time on triflers, and to shorten an otherwise tedious study. *Vita brevis, ars longa, et occasio celeris.* But this is not all that is wanted. For,

Although of late very great improvements have been made in every other part of medicine, yet the *Materia Medica*, one of the most useful parts of it, has been too much neglected, and continues to be over-run with errors, which shall be more particularly enquired into afterwards ; antient prejudices and mistakes being adopted by the most modern writers, and not a little improved by pretended experiments, or real experiments misapplied. *N. B.* *Corallium*, *lapides pretiosi*, *sulphur auratum* *antimonii*, &c. Hence we find poisons considered as antidotes ; substances of no efficacy, as universal remedies ; numberless specifics, catholicons, arcanums, &c. in authors ; to pass over the scandalous differences too observable among them. Hence also the reputation of medicines is as precarious and changeable almost as the fashions. Have we not seen new pretended remedies blaze like comets for a few months, and then disappear ; and many old ones, in great request within these few years, now exploded, and banished the shops. Yea, we have seen a standard *Pharmacopœia*, composed by one of the most learned bodies of physicians in Europe in 1619, or about the beginning of the last century ; and since four or five times revised by them, and as often honoured with the sanction of public authority ; and last of all, no longer ago than 1720-21 ; in the preface to which edition it is said, “ *Eo siquidem consilio processimus, ut in mole haud immodica quam maxima relinqueretur remediorum varietas ; ut esset quod vetera sequentibus, quod nova amantibus, quod simplicitate gaudentibus, quod composita probantibus placeret : ut esset denique aptum quid et conveniens, quod ad morbum quemcunque facile accommodare posset medici solertia.*”—We have seen, I say, even this *Pharmacopœia*, in about twenty-five years after its publication, and while there were about twenty of its authors alive, taken to pieces ; its errors, defects, superfluities, &c. exposed, and all quite new modelled, or rather almost entirely cancelled, and a new one put in its place ; the common and well-known names of 74 of the prescriptions, though supposed of the same virtues with the old, changed for new ones without any necessity.

But what I am most concerned in is the simples ; which one would think a committee, that were such enemies to a redundancy in composition, would have more regarded than they have done.

A. For,



A. For, 1. Many useful, and every where else usual, simples are excluded their list, which notwithstanding they call the *Materia Medica*; of which not fewer than 58 have place in the following lectures: among which are, to instance in the roots, the radices aper: majores et minores, excepting eringo, aristolochiæ rotundæ, asari, bardanæ, bryoniæ, chelidonii, chinæ, lichorei, cyperi, dictamni, ebuli, filicum, galangarum, imperatoriæ, lapathorum, ligustici, lilii albi, peucedani, polypodii, rhapontici, symphyti, scorzonæræ, scrophulariæ, turbith, et valerianæ hortensis. In the preceding edition, 1721, there are 134 radices; but in this *Materia Medica* only 40. A strange abridgment!

In the *Pharmacopœia Reformata*, edita 1744, there were inserted radices 48, of which 13 are omitted in the *New Pharmacopœia*, printed in 1746; in place of which only 5 were taken in by the college. By this specimen you may judge of the whole, as to their number, and see that the simples had few friends in that society.

B. "The catalogue of simples in the first edition of our *Pharmacopœia* contained only such as were used in the preparations and compounds of the book; but is since become rather a general collection of the *Materia Medica* than a list directing apothecaries what drugs their shops ought to be furnished with. It has therefore now been thought expedient to make out a new catalogue, from the book as here reformed: though the committee think there ought to be also inserted in it all other simples, which are at any time prescribed in practice: but the addition of these is left, till they shall be proposed and agreed on in a general assembly of the college." See also *Narrat.* p. 47. where, says the committee, "The catalogue of simple medicines, which in the preceding draught contained only such simples as entered the compositions of the book; which method was taken to reduce it from that useless length to which it had been extended. But as the committee then proposed, that any other simples might be added to it, which are occasionally prescribed, they have here inserted such as they apprehended to be most generally used." *Pharm. Reform. Abstract.* p. 18. The first edition of the *London Dispensatory* was in King James the Sixth's reign: at least, there was published a "*Pharmacopœia Londinensis, in qua medicamenta antiqua et nova usitatissima, sedulo collecta, accuratissime examinata, quotidiana experientia confirmata, describuntur; opera medicorum collegii Londinensis, ex serenissimi Regis mandato. Londini, 1619, and 1632.*" *Lind. Renov.* p. 1070. This I take to be the old *Dispensatory*, mentioned by Culpeper in his *Pharm. Lond. edit.* 1653. of which he gives the simplicia, with his commentaries on them, before he proceeds to name the simples of the then new *Dispensatory*. "Thus much, says he, p. 34, for their old *Dispensatory*, which with them is now, like an old almanack, out of date.— And thus I come to the thing they call their *New Dispensatory*, or, as more properly it is, their old one new vamped." In this old *Dispensatory* the simples are sufficiently numerous, there being, *e. g.* not less than 150 radices in it, *et sic de cæteris*. If all these were used in the preparations and compounds of the book, there was little occasion for adding any more; all these I mentioned as omitted in the *New Pharmacopœia* being among them, and yet not a few are added in the *New Dispensatory*. So here is no precedent thus

thus curtailing the *Materia Medica*; nor can I find the smallest reason for it. Are physicians never to order, nor apothecaries to keep any other? Could it be to disconcert the practice of physicians who studied abroad, or esteemed foreign physicians, or even had any regard for those authors of their own nation who have been an honour to the profession? "It is an arrogance peculiar to some of our age and nation, to despise the most learned and celebrated writers in their own profession." *Friend's Hist.* i. 305. Yet,

C. 2. We owe it to the *theriaca* and *mithridatium* that not a few simples are retained. *e. g.* Six radices are used in these compositions only; with relation to which says the preface, "Nonnulla vero vi consuetudinis cedentes, posteritati corrigenda relinquimus." And the committee adds, "The *theriaca* gained so high a degree of credit, that even the wise Marcus Aurelius was prevailed on to make a daily use of it, to the great prejudice of his health, till his head was so affected, that he dozed in the midst of business; and then omitting the opium in it, was not able to sleep at all." *Galen. Antidot. L. 1. C. 1. Pemb. Dispensatory Narrat.* p. 6. Allowing these to be redundant, yet their virtues are as well known as those of the most simple; and I am sure better than the virtues of the *Philonium Londinense*, in which every grain of opium is fired by piperis, zinziberis, and carvi, of each  $2\frac{1}{2}$  grains. But hear Galen: "Aurelius Antonius Imperator, quo se imprimis tutum a veneno prestaret, singulis diebus tantum *theriacæ* quantum est *Egyptiæ Fabæ* magnitudo," (*i. e.* two scruples, or at most a drachm, in which there was but about  $\frac{1}{4}$  of a grain of opium, and gr. xl. of honey; so the gr. ix. of other ingredients could have little effect) "sumpsit, — sed cum ipsum quotidie inter vitæ functiones quoque profundo somno corripui accidisset, papaveris succum eximi iussit. Quare rursus evenit, quia mos ejus ita antea fuerat, — ut plurimam partem noctis insomnem duceret. Quamobrem coactus est denuo *theriacam* assumere, quæ papaveris succum haberet, jam aliquomodo inveteratum." Thus Galen, l. c. and by what there follows it appears, that the Emperor's experience did in no wise lessen his esteem for the medicine.

The great application of M. Aurelius to the study of philosophy, and the austerities he practised, impaired his health to such a degree, that he became very weak and infirm, tho' naturally of a robust constitution. To strengthen his stomach, greatly weakened by fasting when he was but a youth, he used to take every day some treacle, which was made up for him by one of his physicians, named Demetrius, and, after his death, by the celebrated Galen. As he led a very regular life, he lived, notwithstanding his bad health, almost to the age of sixty, applying himself to the dispatch of business with more care and assiduity than any of his predecessors had done. *Univ. Hist. in 8vo. Vol. xv. p. 209.*—Marcus Aurelius began to reign A. D. 163, and died A. D. 181; and that the reputation of the *theriaca* still continued, is evident from many places in Galen, who tells us, that Severus, who died A. D. 211, kept continually by him a great store of treacle, and other expensive remedies, to relieve such as wanted them: by which means he saved the lives of many persons, namely, of Antipater his Greek secretary, of the son of Piso, to whom Galen inscribed his Treatise on treacle, &c. *Univ. Hist. Vol. xv. p. 322.* Vide Galen, *De Theriaca*, l. 2. p.



D. 3. Although it might have been expected, that in this short list the utmost accuracy would have been studied, and no occasion given to object against any thing in it, (which surely was not very difficult) yet, that the simples had very little share in the attention of the committee is too evident; for ( $\alpha$ ) the *Materia Medica* of their plan wants *alumen*, *bolus Gallica*, *buxi lignum*, *ol. cinnamomi*, *matricaria*, *mel*, *myrrha*, *parietaria*, *succinum*, *sulphur*, & *trifolium paludosum*, which have a place in the college *Materia Medica*: and ( $\beta$ ) this wants of the committee's list, *butyrum*, *fœniculi vulgar. radix folia et semen*, *lac asininum*, *lac vaccinum*, *lixivium saponariorum*, and *vitriolum Dantiscanum*. Vide *Plan of the New Lond. Pharm.* Ed. 1745. And both have *chalybs* and *ferrum*, *hordeum distichum*, and *hordeum perlatum*, *limonum succus cortex et essentia*.

E. The most common medical synonyma of the retained simples are left out, though some of them are retained in the compounds, as *ibiscus*, *acorus adulterinus*, *melampodium*, *thebaicum*, *veratrum*, &c. ( $\gamma$ ) They allow of using indifferently simples of very different natures, under one common name; as, for *abrotanum*, either *abrot. maf.* or *abrot. fem.* for *animum*, either *a. racemosum* or *fisonis femina*, for *pœonia*, *p. maf.* or *fœmina flore pleno rubro*, for *thlaspi*, either *th. verum* or *th. vulgatus*, for *pimpinella saxifraga*, either *p. f. major altera B. P.* or *p. f. minor, ejusdem*, a needlessly alternative; being, as there are many more, only varieties; for *terra Lemnia*, (not among the simples, though in the *theriaca*) either the *bolus Armena*, or *b. Gallica*; and order the *radix angelicæ* to be brought from Spain, when it is got as good in every garden in Britain, yea in the mountains of Lapland, and better too; *arum*, to be *a. maculatum*, *maculis nigris*, though only a variety of the *a. vulgare non maculatum*; for *calamintha*, *c. pulegii odore*; for *absinth. Romanum*, *a. maritimum*; thus adopting the frauds of herb-women, &c. ( $\delta$ ) *Folia* are often ordered when it should be, and commonly was in the former edition, *herba*, or *summitates*, *e. g.* *artemesiæ*, *atriplicis olidæ*, *chamæpytyos*, *calaminthæ*, *majoranæ*, *fabinæ*, *thyni citrati folia*, and many more.

I might also observe, ( $\epsilon$ ) that some simples they have thrown out, are, in some cases, preferable to such as are retained; as, *aloe hepatica* to *a. focotrina*; *aristolochia rotunda* to *a. longa*, &c. Vide *supra*. I might also notice *caryophylla aromatica et eorum oleum*, *c. rubra*, *ol. cinnamomi*, *gladiolus luteus*, *labdanum*, *lavendula angustifolia*, *B. P. napi sativi semen*, *scincarum ventres*; against which several things may be excepted. But, perhaps, I have been already long enough on this disagreeable subject; I shall therefore say little or nothing of the compounds here, some of which will come in better afterwards; only allow me to read what the committee says of one of them. "The *extractum rudii* is a medicine of singular importance, "and performs what is expected from it so well, that much caution is required in any attempt towards reforming it, though the medicine would be "yet more valuable if it could be rendered something less offensive to the "stomach. Perhaps a diminution of the *coloquintida* might answer that end; "but as this medicine is relied on in cases where the life of the patient depends on its taking effect, the committee could not venture upon such an "alteration without full experience that the certainty of its operation would

“ not be prejudiced thereby. But they apprehend the medicine may without  
 “ any danger of this kind be rendered more simple by substituting a proper  
 “ quantity of aloes for what the agaric black hellebore and turbith yield to  
 “ the extract, which is found by experiment to be but little.—Also as the  
 “ efficacy of the spices consists in their volatile parts, their place will be more  
 “ judiciously supplied by some spices of another character.” Thus *Narrat.*  
 p. 51.—Should the receipt then have been altered? (v. turpeth minerale.) Yet  
 the three above-named (3) spices are thrown out, the aloes increased, sem. car-  
 damom. minoris decorticat. added and sp. v. tenuior taken for f. v. opti-  
 mus: and thus it differs more from the extractum rudii than from the pil. de  
 coloc. cum aloes.

It has been the misfortune of the *London Dispensatory* not to be much re-  
 garded, even there; and, as I hear, this new one as little as the former. It  
 is well known how society-dispensatories are managed. What I have said is  
 for your sakes, that the neglect of others in so material a part of their business  
 may be a spur to quicken your application to it.

Is it not a pity that there should be such differences of opinions, and such  
 various modes of practice, &c. among physicians, as give too good a handle  
 to the ignorant to despise the whole science of physic. For since opinion can  
 never alter the nature of things, or the virtues of simples, our differences must  
 be owing to ignorance; though it is not invincible, as I shall shew, were we  
 at pains to study the simples as we ought.

“ I cannot enough admire the judiciousness and sagacity of the ancients,  
 “ who have handed down to us such an account of the virtues of plants used  
 “ in physic, that all the laborious endeavours of their inquisitive successors  
 “ have never been able to outdo them.—It must have been a long tract of ex-  
 “ perience which enabled Dioscorides and Theophrastus to collect such virtues  
 “ as scarcely any thing has been added to, even to this day. The Royal Aca-  
 “ demy has been at great pains to find out the virtues of plants by the chemical  
 “ analysis, and other experiments; but these only serve to confirm what the  
 “ ancients advanced without any new discovery: for Waster having made ex-  
 “ periments with the blue paper, and given an account of its general chemical  
 “ principles concludes,—therefore it is not surprising if it is endued with  
 “ such virtues: which is nothing but giving a reason, why the ancients believed  
 “ they were good for such a distemper.” *Dr. Blair Phyl. Transf.* N°. 364.  
 p. 30. *Anno* 1720. Which is too true in part, but more to the shame of the  
 moderns, than honour of the ancients. Little indeed has been added, not  
 because little was wanting, but because the attention of the learned has been  
 otherwise employ'd, and very little directed that way: and as the too great  
 and even superstitious regard to the opinions of the ancients has been a fertile  
 source of errors in the *Materia Medica*, so a too wanton deviating from and  
 despising the experience of our predecessors has proved another: for I may  
 venture to say that even the experiments made on simples as commonly related  
 or applied, especially by the French authors, serve more often to confirm an-  
 cient mistakes, than to make new discoveries: while, on the other hand,  
 ignorance of the consequence of experiments rightly instituted, and general  
 conclusions falsely drawn from particular instances in practice, together with  
 pride and self-conceit, has been the cause of infinite blunders, and plagued  
 the



the world with very trifling and injudicious performances: for, as a late poet has it,

Founded on truth this maxim lies,  
That what we have not we despise.

It has ever been the misfortune of medicine to have more pretenders to it, than to any other science; and a too common weakness in mankind in distress to have recourse to those who most confidently promise relief; such as mountebanks, quacks, arcana-venders, and specific-mongers, how ignorant soever they be of the disease as well as nature of their own boasted remedies. Whatever some may imagine, medicine is a long study, and not easily acquired; *ιατρικὴν ὃ δυνατόν ἐστι τέχνη μαθεῖν. Hipp. de locis in homine, §. 50.* and to practise it without being sufficiently qualified, altogether inconsistent with the character of an honest man. “Hence, says Dr. Friend, *Hist. i. p. 304*, “I don’t see how any honest man can satisfy his own mind, in such a superficial knowledge, as is to be gathered barely from a few modern systems; “or think himself sufficiently qualified, to sit upon life and death, for that is “the case, by only consulting two or three dispensatories, or perusing as “many apothecaries files, or even in spending a few months in an hospital. “It is an arrogance, peculiar to some of our age and nation, to despise the “most learned and celebrated writers in their own profession.” I have known attempts made to confute the great Boerhaave, even by such as had never learned the first principles of physic to any purpose. *Scientiæ inimica ignorantia.* You have here every part of medicine taught in our university, to as good purpose, perhaps, as any where else; and it will be your own loss as well as fault, if you misimprove your time. I will not pretend to equal my learned colleagues: yet I think that I may venture to say, if you diligently attend my lectures, and follow the directions therein given, you may come to understand more of the nature and use of simples in one or two seasons, than by your private studies you could do in seven years, though furnished with all the books on the subject that I have ever seen.

F. It is observed, as I am informed, that not a few of those who study here, are grossly ignorant of pharmacy. And no wonder, since so few of them attend the *Materia Medica*, through the bad advice they get from such as are intrusted with directing their education. This loss they soon become sensible of, when it is too late to make it up. *N. B.* The advantages of natural history. *Dum vires animusque sinunt, &c.* But here allow me to take notice of an objection made by some against medicine in general. There is a question which Johannes Beverovicus, a learned physician of Dort, thought necessary to be stated by the votes of the learned of his age, before he would hope his profession could find any considerable reception amongst men; viz. Whether there were a fatal period of every man’s life, beyond which it were not in the compass either of art, or sobriety, or good management, to extend it; and as little in the power of disease or intemperance, or even the plague or sword, to shorten it? Vide *J. B. Dordraconi Epistolica quæstio de vitæ termino fatali an mobile, cum doctorum responsis. Dordrecht 1634. in 8vo. Lugd. Bat. 1636. in 4to. triplo auctior. De eadem quæstione pars tertia & ultima, with additions, Leydæ 1639. & 1651, both in 4to. Linden, p. 542.*

It does not become me, nor can I pretend, to determine a question about which many of the most pious and learned have been divided. "There are difficulties in religion, for which human reason can but ill account. Such is the reconciling the prescience of God with the free will of man; which after much thought on this subject, Mr. Locke fairly confesses he could not do, though he acknowledged both; and what Mr. Locke could not do, in reasoning upon subjects of a metaphysical nature, I am apt to think, few men, if any, can hope to perform." *Obs. on Convers. of St. Paul*, p. 75. *Illud verissimum est*, says Erasmus (*De colloquiorum usu*, p. 742.) *nos de DEO non posse loqui nisi verbis impropriis*. But whatever one may believe concerning these abstruse points, I think I am sufficiently warranted to say that it can be no objection against medicine, more than against meat and drink. Yet Dr. Friend seems to have been of another mind, in the reflection he makes on a notable story in *Elmacin's History of the Saracenes*, which take in the Doctor's own words.

"When the Caliph Rashid was seized with an apoplectic fit, *Anno Hegiræ* 180, about *A. D.* 800, and the physicians were called together to consult what to do, the son of Bachtishua, an ingenious young physician, proposed bleeding. Mahomed Alamin, Rashid's eldest son, protested against it: but Almamon the youngest interposing, and saying since the physicians give him over, and unanimously are of opinion that he will die, what hurt can there be in bleeding. Perhaps he may recover by it, and without it he must certainly perish. He was accordingly let blood, and immediately recovered; and from that time had a greater fondness for Almamon, and constituted Bachtishua his physician, with the annual salary of 100,000 drachms (*i. e.* about 1500 pounds.) By the way we may learn from thence, that the doctrine of predestination, which so much prevails among the modern Turks, did not make any deep impression upon the minds of this people, in these early times. The sequel of this history will let us see, that they were far from thinking the term of life fixed; and that as they never neglected to make use of all human means to prevent or cure diseases; so accordingly they gave as great encouragement to the professors of this art, as ever any nation did." *Dr. Friend, Hist.* ii. p. 12, 13, 14.

The Turks certainly are, and I believe always were, very rigid predestinarians: for, according to Mahometan theology, "Fides in decretum Dei est, quod & mente credamus, & lingua confitamur Deum excelsum decrevisse res & modos rerum, ita ut nihil contingat in mundo, sine quod attinet ad rerum status, sine operationes, sine bonum, sine malum, sine obsequium, sine inobedientiam, sine fidem, sine infidelitatem, sine valetudinem profperam, sine adversam, sine divitias, sine paupertatem, sine vitam, sine mortem, quod non sit contentum in decreto Dei, & ordinatione, voluntate & judicio ejus.—Bonum vult ita ut placeat, malum vero vult ita ut id aversetur. Dirige nos, O bone Deus! in viam rectam." Vide *Had. Relandi Compendium Theologiæ Mahomedicæ*, p. 61. Hence, according to them, the means are decreed, as well as the end; and their thinking the term of life fixed, as well as every thing else, can no more make them neglect the use of means, when sick, than meat when well; or despise medicine more than agriculture. Our divine, we see, concludes with a prayer.

St. Luke, the beloved physician, as St. Paul calls him, in the history of that apostle's shipwreck, informs us, that after long abstinence, Paul said, "Be of good



“ good cheer, for there shall be no loss of life among you, but of the ship; “ and that an angel of God had told him so.” Yet when the seamen were about to get out of the ship, and go off in the boat, the same Paul said to the centurion, and to the soldiers, “ Except these abide in the ship, ye cannot be “ saved.” An ignorant woman may say, you can never prevent death though you may give ease; and certainly in many cases it is not in the power of physic to protract life. But in many more cases it is, and can be done. Diseases in their own nature mortal, are daily cured by proper means. Are not hunger and thirst mortal diseases? and do we not cure these? Surely no Turk, however much a predestinarian, if not distracted or mad, will deny himself the use of meat and drink, these necessary means of life and health, if he can get them. And since, according to the predestinarian doctrine, the most minute as well as the greatest events, the degree and the duration of pain, as well as life and death are predestinated, he must be a bad divine, however good a physician, who imagines, that predestinarian principles make the use of means unnecessary; or that because the Saracens used human means, and encouraged physicians, the doctrine of predestination made less impression on them than it does on the modern Turks.

How extravagant soever the Turkish doctrine may appear, yet it seems to be exceeded at this day by some, I hope not many, who are called Christians, and would be thought profound philosophers; who, without any regard to revelation, would persuade the world, that all our actions are necessary, our freedom to act or not to act imaginary only, and consequently no morality in any thing we do; and Ænæas would have been as pious had he thrown his aged father Anchises into the fire, as when he carried him on his shoulders out of burning Troy: An opinion not more impious than it is absurd, and contrary to common sense as well as reason. For if we have as great evidence of the freedom of our wills as we could have, were they really free; then we can have no reason to doubt of it: but every one has such evidence; *ergo, &c.* and to alledge, that because external objects do not correspond with the ideas they excite in us, (which however is not true), therefore our feelings of freedom are only imaginary, and deceitful, is an inference every way as defective, and ridiculous as it would be to infer, because we know not all things, therefore we know nothing; because the essence of the sun falls not under our senses, therefore we know nothing of his light and heat. And were it the will of our great Creator to impose such deceitful feelings on his rational creatures, and thereby subject them to punishment for what they could not but do, which appears to be blasphemy, those subtle philosophers, who alone have discovered it, appear to be equally unfaithful secretaries to their Maker, and enemies to human society.

In the following preliminary lectures I design to entertain you with,

1st, Some observations on the invention of remedies, and fate of the *Materia Medica*.

2dly, A short account of the operation of medicines, or their action on our bodies.

3dly, An enquiry into the causes of many errors concerning simples, still too common; and show how they are to be avoided, and a sufficient certainty acquired; in order to solve the two grand problems, *De vitandis circa*

*Materiam Medicam erroribus; & de investigandis medicamentorum facultatibus*, which are of the utmost consequence in physic.

4thly, An explication of the classes into which I have distributed the simples, *secundum vires*; and,

5thly, With some directions how the *Materia Medica* ought to be studied; and the characters and use of some writers on it. And thus it will appear how necessary, and useful, colleges on this part of medicine are at this day, and probably ever will be, if it were no more than to shorten an otherwise so long a study that ye could not have time to make a tolerable proficiency in it.

## L E C T U R E II.

THE history of the rise and progress of the knowledge of medicines differing little from the history of physic, at least during its first period, that is before Hippocrates, you can expect only an abstract of what has occurred to me most remarkable, with relation to the invention of remedies, its progress in different ages, and the most celebrated authors thereon: which shall be done in a few remarks, for which I am chiefly obliged to Monsr. le Clerc, and Dr. Freind.

*Histoire de la Medecine, ou l'on voit l'Origine & les Progrés de cet Art, de siecle en siecle, &c. par Daniel le Clerc, M. D. à Amsterdam, 1723, in 4to, of 820 pages.* "I was impatient, says Dr. Freind, to see the new edition of "Mr. le Clerc's History of Physic, for I have always had a great opinion of "the judgment and learning, which he has shewn in the three parts already "published. In them he brought down the history to the end of Galen's time, "and having searched into his works, and into those of all the writers that "preceded him for above 600 years, he put together his memoirs, not only "with indefatigable industry, but with exquisite skill. We find there very "amply and clearly represented all the philosophy, the theory and practice "of the antient physicians; so that there is scarce a notion, a distemper, "a medicine, or even the name of an author, to be met with among them, "of which he has not given a full and exact account. In this edition we have "a plan, containing 56 pages, which he designs should serve for a continuation of the history down to the middle of the 16th century, the title by "mistake says the 17th century; a space of 1200 years, and too large to be "well explained in so short a sketch, though he had not filled half of it with "relating the obscure jargon and nonsense of that illiterate enthusiast Paracelsus." Thus *Dr. Freind's Hist.* part i. p. 1. To supply the defects of this plan, seems to have been the design of

*The History of Physic from the time of Galen to the beginning of the 16th century; chiefly with regard to practice, in a discourse written to Dr. Mead, by J. Freind, M. D. in two volumes, 2d edition, corrected.* Lond. 1725, 8vo. is on the first volume: but not on the second, printed there in 1726, in 8vo. also; which is near half as large again as the first. I will not pretend to characterise this performance; only if we consider that it takes in the same space with Le Clerc's plan; consists but of 727 pages, both volumes put together, and that three pages and a half



half of it at least, might be contained in one page of Le Clerc, it is obvious that Dr. Freind has not given so particular and extensive an account of this period of time, as Dr. le Clerc did of the former, but rather an abstract, or compend of its history; and perhaps more was unnecessary: and it is written in so agreeable and entertaining a manner, that scarcely any body can begin to read it, without going through it and wishing it was longer. But, to proceed,

I remark 1. That the invention of medicine, by the pagan antiquity is ascribed to the gods. Vide *Hippocrat. Lindenii, De Veteri Medicina*, vol. i. p. 27. §. 24. *Cicero Tusc. Quest.* l. 3. §. 1. p. 1166. *Plinii Hist.* l. 29. c. 1. p. 715. As the heroes who contributed to its improvement, by discovering new remedies, were thought worthy of consideration and deified after death. Vide *Le Clerc's Hist.* p. 3. Yea even the Jewish doctors, and some Christians, from Adam's giving names to every living creature, infer that he was inspired with a perfect knowledge of their nature and use too. But the scripture-names of these creatures, if the same that Adam gave them, do not favour this opinion, they being taken from their voice, colour, magnitude, or some such external difference only. Vide *Patrick's Commentary*, vol. i. p. 15. However the son of Sirach, *Ecclesi.* xxxviii. 2. says, Παρά υψίστης ἐστὶν ἰασις, "Of the most High cometh healing," or as Castalio renders him, *Est enim a supremo medicina*: "From whom certainly cometh every good and perfect gift." *James* i. 17. And

It is more than probable that the Divine Providence has remarkably interposed in the discovery of the most useful remedies. To what else can we attribute those which are said to have been found out by chance, natural instincts, unaccountable longings, lucky mistakes, &c. *Quædam medicamenta casu, quædam instinctu; alia ab experientia effluxerunt: multa ab Indis, multa a brutis derivamus; barbari enim & feræ commodissimas res invenerunt, quæ gentes sapientissimas latuerunt*, Dale, part 1. p. 7.

According to a very ancient story it was a serpent, that by chance discovered to Polyidus, a divine of Argos, an herb whereby he restored to life Glaucus the son of Minos, King of Crete, who had been stifled in a cask of honey; related by Hyginus and Apollodorus. Vide *Le Clerc's Hist.* p. 4. But we need not have recourse to fables: we shall have many instances afterwards of the providential discovery of the virtues of simples. N. B. Mr. *Vaillant's Case in Bot. Par.*

2. That the invention of medicine is attributed to many ancient heroes, only because they discovered some simple remedies. As to Bacchus, for the invention of wine: to Hammon, for writing, as it is said, on precious stones: to Hermes or Mercury, as the inventor mercurialis, and who gave to Ulysses the moly, as an antidote to the charms of Circe. Vide *Homer. Odyss.* x. v. 302. —Many books go under Hermes's name; but nobody thinks them genuine, or believes with Jamblicus that he wrote 36,525, *i. e.* more than one every day for 100 years: to Horus or Apollo, from whom Apollinaris or Hyoscymus. Vide *Plin.* l. 25. c. 4. p. 631. *Inventum medicina meum est*, &c. says Apollo in *Ovid. Metam.* l. 1. v. 521, &c. to name no more, to Asclepias or Æsculapius, after whom Asclepias and Panaces Asclepium are named. These are all said to have been of one family, and to have lived in the age immediately after the flood.

But then between this Egyptian and the Græcian Æsculapius there are 900 years, or according to Sir Isaac Newton, more then 1200, viz. from the age after the deluge to the expedition of the Argonauts; during which period nothing is found in the Egyptian annals concerning medicine: and indeed little stress is to be laid on them, either before or after it; for “although they anciently boasted of a very great and lasting empire under their Kings Ammon, Osiris, Bacchus, Sesostris, Hercules, Memnon, &c. reaching eastward to the Indies, and westward to the Atlantic ocean; and had the vanity to make their monarchy, some thousand years older than the world; yet Sir Isaac shews, that Ammon the oldest of these princes, was contemporary with David, and married his daughter to Solomon, about the year *ante Christum* 1019, and that his son Sesostris, called also Osiris, Bacchus, Hercules, and Sefac, was about the same age with Rehoboam, and spoiled the temple in his reign, about 974 years before Christ.” *Reid’s Abstract of Sir Isaac’s Chron.* p. 53. Certain, however, it is,

3. That not a few simples were used in Egypt, before David’s time: for we read, *Genes.* xxxvii. 5. of Ishmaelites from Gilead, carrying θυμιαματα, ρητινην, και στακτην, spices, balm and myrrh, down to Egypt; that is about 660 years before David’s accession to the throne: that Jacob was embalmed in Egypt, *Genes.* l. 2, about 38 years after: and that, in *Exod.* xxx, ver. 23, 24. and 34, directions are given how to make of ανθος σμυρνης, εκλεκτος, κινναμωμον ευωδης, καλαμος ευωδης, and ιρις κασια ελαιον εκ ελαιων, pure myrrh, sweet cinnamon, sweet calamus, cassia and olive oil, an unguentum f. a. unguentarii. Also, ver. 34. λαβε σεαμτω ηδυσματα, στακτην, potius ληδανον. δονυχα, χαλβανην ηδυσμα, και λιβανον διαφανη, ισον ισω εσται. και ποιησεις εν αυτω θυμιαμα μυρεψικον εργον μυρεψ μεμιγμενον. That is in our modern dialect, R. Aromatum stactes, onychæ, cal. croci, galbani odorati & thuris diaphani. a. p. æ. m. & f. f. a. unguentarii suffimen. (purum & sacrum.) Which are the most ancient recipes on record, being more than 1000 years older than Hippocrates. In a word, there are named in the Pentateuch about 20 minerals, 10 vegetables and animals. Diodorus Siculus remarks that the Egyptian medicine turned all on abstinence, clysters and vomits.

4. That the eldest Greek physician we know any thing of is Melampus of Argos. He was the son of Amithaon and Aglaide, the daughter of Abas, and probably flourished about 100 years before the Argonautic expedition. Some make him 150 years older than Æsculapius. But Abas the father of Prætus came from Egypt only 134 years before that expedition of which Æsculapius made one: so that Melampus the grand-child of Abas could not well be made more than 100 years older than Æsculapius, if so much.

This Melampus is said to have been a famous diviner, poet, physician and shepherd; to have lived to a great age, and been celebrated by Hesiod in a book that is lost. Two famous cures are attributed to him: one was of a furious distemper, or mania melancholica, with which the women of Argos, and particularly King Prætus’s daughters, were afflicted, by purging them with the white or black hellebore: the first instance of a purgative being given. The other cure was of sterility or want of children, on Iphiclus, one of the Argonauts, by drinking the rust of iron in wine for 10 days. This again, says



says M. Le Clerc. *Hist.* p. 27, is the first time we hear of a mineral medicine taken inwardly. The story is sufficiently fabulous, and there is an anachronism in it, or Melampus has been old indeed. He was deified after death : temples were erected, and sacrifices offered to him in some parts of Greece.

5. That from the Argonautic expedition under Jason, for the golden fleece, anno ante Christum 937, according to Sir I. N. (vulgo 1242,) until after the destruction of Troy, in 904, Sir I. N. (1184 vulgo,) ante Christum.

Almost all the heroes are celebrated as inventors of medicine ; for about the time of this expedition flourished Chiron the Centaur, son of Saturn and Phyllyra. He is said to have lived in a grotto of Mount Pelion, taught philosophy, astronomy, medicine, music, game, art of war, &c. and to have found centaurium, panaces chironium; and other vulnerary medicines : and to have instructed Æsculapius, Hercules, Aristæus, Theseus, Telamon, Teucer, Jason, Peleus, Achilles, &c.

Æsculapius, the son of Apollo and Coronis or Arsinoë, according to Galen, perfected medicine ; but his *Divina Medicina* seems not much to have exceeded surgery : neither that of his sons Machaon and Podalirius, who were at the siege of Troy. Yet he was worshipped after death as the God of health, and honoured with temples and sacrifices. Podalirius returning from Troy, where his brother was killed, was cast by a tempest on the coast of Caria, (now Aidinelli), and carried by a shepherd named Bubastus, who entertained him, to see King Damethus's daughter Syrna, who was ill of a fall from the top of a house. He recovered her by bleeding at both arms, (the first instance of V. S.) got her in marriage, and with her the Chersonesus, where he built two cities, calling the one Syrn, after his wife, and the other Bubastus, after the shepherd. *E Steph. Byzantino. Vid. Le Clerc. Hist.* p. 53.

To Hercules we are said to owe papaver Heracleum, panace Heracleum, nymphæa : to Aristæus, king of Arcadia, the sulphur, oil, honey : to Teucer, the teucrium, and so on. Even Helena had her nepenthes : and Achilles had many remedies, of which ærugo was one ; and achilleia bears his name. *Vid. Le Clerc. Hist.* p. 32.

6. That from the ruin of Troy down to Hippocrates, a period of 473 years, according to Sir I. N. (vulgo 753), we know little of the progress of medicine in any part of it ; although it was certainly preserved in Æsculapius's family, and schools of physic were erected in several places." Pliny also frequently quotes Epicharmus of Coos, a disciple of Pythagoras, for the virtues of simples, whose writings are said to be still extant in the Vatican.

" Post Æsculapii filios," says Celsus, pref. p. 2. " nulli clari viri medicorum nam exercuerunt, donec majori studio literarum disciplina agitare cœpit, quæ ut animo præcipue omnium necessaria, sic corpori inimica est. Primumque medendi scientia, sapientiæ pars habebatur, ut et morborum curatio, et rerum naturæ contemplatio, sub iisdem auctoribus nata sit, his hanc maxime requirentibus. Ideoque multos ex sapientiæ professoribus peritos ejus fuisse accepimus : clarissimos vero ex his Pithagoram, et Empedoclem, et Democritum ; cujus autem ut quidam crediderunt discipulus Hippocrates Cous, primus quidem ex omnibus, memoriæ dignis ab studio sapientiæ, disciplinam hanc separavit, vir et arte et facundia insignis."

As



As the discovery of remedies was certainly the chief ambition of the ancient physicians, it being of more consequence to find out one medicine, than to publish volumes of the most accurate reasonings about the disease it cures. "Quia non interest," says Celsus, pref. p. 10. quid morbum faciat, sed quid tollat." N. B. Jo. Jac. Neuhold, *Obs. Pathologico Therapeut.* — *De inextirpabili latorum vermium progenie*, in the Appendix to the *Acta Physico-medico Acad. Cæs.* Vol. iii. edit. 1733, p. 159. And *Amanitat. Academ.* Vol. iii. p. 231. edit. Holm, 1756. So during this first age of physic the Materia Medica seems to have been pretty extensive: for the greatest part, if not all the simples which we find in Hippocrates, were known before him, and how long we cannot tell. Vid. *Hippocrat. L. de veteri medicina*. And it is remarkable,

7. That most of the simples now in use, are to be found in the works ascribed to that good old man, at least as commonly understood. I am far from thinking we know all his medicines, yea doubt if either Dioscorides or Galen did. But Hippocratis Materia Medica is very near as numerous in simples as is ours. For I found in the works that go under his name, some of which are certainly spurious, about 36 mineral, 300 vegetable, and 150 animal substances, in all 486, and I cannot pretend to have overlooked none.

Hippocrates, the son of Heraclides and Phanarete, (Sorano, Praxitheæ filiae Phanaretæ, *Lindenio*; Phanaretæ, or Praxithea, *Le Clerc*.) was the 18th from Æsculapius, by his father, and the 19th from Hercules by his mother's side; and born in Coos, now Longo, an island of the Archipelago, the first year of the 80th Olympiad, i. e. 460 years before the Christian æra. He had for masters first his father, then Herodicus the Gymnastic, and, as some think, Gorgias Leontinus the orator, and Democritus of Abdera the philosopher. Vid. *Hippoc. genus & vita*, written by Soranus, before A. D. 500, in *Foes*, p. 1297. or *Vide Linden*, 2. p. 951.

"I cannot avoid to observe, that more than justice is done to Democritus of Abdera, by Soranus, Suidas, Celsus, &c. when they assign to him the honour of having been master to the divine Hippocrates; for if we reflect upon the variety of arguments used by the people of Abdera to persuade Hippocrates to undertake the cure of Democritus, that of his having once been his master could never have escaped them. Wherefore, when Hippocrates is said to have been the disciple of Democritus, in my judgment it ought to be understood of Democritus of Co, as Dr. Douglas hints," &c. Thus J. Gibson, *Med. Eff.* Vol. i. p. 173. I know nothing of a Coan Democritus; but I think the foundation of Mr. Gibson's criticism, a stronger objection against the letter of the Abderitæ to Hippocrates being genuine, than against Democritus being one of his masters: most, if not all these letters added to his works, being "vix divino seni dignæ," as Rhodius in Scribonius has it, and of a much later date. For one of them is to Crateva, who is called Ἀπίστος ῥιζοτομος: but Κρατεὺα ῥιζοτομος lived 300 years later, being cotemporary to Mithridates and Pompey. Another is to Dionysius Halicarnassæus, who lived in the days of Augustus. The letters to Damagetus give a comical account of Democritus, and his conversation with Hippocrates; to which interview most of these epistles relate. Hippocrates died at Larissa in Thessaly, aged 85, 90, 104, or 109, according to different accounts; and

was

was buried between Gyrtone and Larissa, "where, says Soranus, who was cotemporary with Galen, and wrote the Life of Hippocrates, his monument is seen to this day, in which bees lived for a long time, whose honey proved an easy remedy for the aphthæ of children if anointed with it near the tomb."

8. That the Greek Materia Medica was at its perfection in the time of Dioscorides, at least it was but little improved afterwards. In him I counted about 90 minerals, 700 plants, and 168 animal substances, that is 958 in all, without reckoning the different simples the same species often affords.

Pedacius, rather Pedanius Dioscorides Anazarbæus, flourished in the reign of Nero, between A. D. 55 and 69, and wrote *De Materia Medica*, *libros v.* which have been as a standard ever since. And hence it is that when *verus* is added to the name of any simple, it denotes its being so called by Dioscorides. Thus the *calamus aromaticus offic.* is called also *acorus verus*, it being, as is believed, the *acorus*, but not the *calamus aromaticus* of Dioscorides. He wrote also a book, *De venenis, eorundemque præcautione ac medicatione*, commonly called his *Alexipharmaca*; and another, *De venenatis animalibus et ab eisdem insectorum vulnerum signis & curatione*, commonly called his *Tberiaca*: both are very short, and but about a tenth part of the length of the five *De Materia Medica*. There are besides attributed to Dioscorides two books, *De euporistis, seu facile parabilibus, tam simplicibus quam compositis medicamentis, ad Andromachum*; but generally reckoned spurious. He wrote in Greek, and has been several times translated and commented on. The best edition is, *Pedacii Dioscoridis Anazarbæi opera quæ extant omnia. Ex nova interpretatione Jani-Antonii Saraceni, Lugdunæi Medici, 1598. Fol.* in Greek and Latin, illustrated with various scholia, &c. "Anazerbensis Dioscorides (says Galen, lib. 6, simpl. proem. p. 39, &c.) quinque libris materiam omnem utilem absolvit; non herbarum modo sed et arborum, et fructuum et succorum, et liquorum memorans; insuper et metallica omnia, et partes animalium. Et mihi utique videtur omnium perfectissime tractatum de materia medicamentorum confecisse. Nam licet a majoribus eo plurima de illis bene scripta extent, tamen a nemine omnium, æque de omnibus, nisi quis Janitrum prædicet Asclepiadis."

There is a famous M. S. Dioscoridis in the imperial library at Vienna, which Augerius Busbequius, when the emperor's resident at Constantinople, found in the hands of the son of Hamon the Jew, who had been physician to Sultan Solymán. Vid. *Busbequii Epist. dated Francofordiæ 16 December 1562. Edit. Amst. 1660, in 16mo. p. 391.* It is inscribed, Ταδε ενστιν Ηεσδανος Διοσκοριδους Αναζαρβæως, περι βοτανων, και ριζων, και χυλισματων, συν φυλλων τε, και φαρμακων; is in capitals without accents or distinction of words; adorned with the figures of the plants and animals, *ad vivum depictis*, and the portraits, pictures or effigies of Juliana Anicia, Galen, Dioscorides, &c. and there is annexed to each article what Crateva and Galen have on the same subject. The very learned Lambecius bestows on it the whole c. 7. lib. 2. of 89 pages *Commentariorum in Bibliothecam Imperialem, edit. Vindob. 1655, in 3 Vol. fol.* where he proves this M. S. to have been written at the expence of Juliana Anicia, daughter to the Emperor Flavius Anicius Olyber, and that it was then 1163 years old; so must have been written A. D. 492, and consequently before



before learning left Greece, being in 1765, 1260 years old, as old to wit as Aetius. Lambecius shewed it to Dr. Brown, who calls it a very fair M. S. and says the plants are finely painted, with the pictures of Dioscorides, Galen, &c. *Harris's Coll.* vol. ii. p. 532. Vide also *Schelhammer in Coving. Introduct.* p. 274 & 348. Edit. 1726, in 4to. N. B. Olybrius Emp. in 473, Tallent's Tab. His daughter Juliana offered to Theodoric King of the Goths in marriage inter A. D. 476 and 479. *Univ. Hist.* Vol. xix. p. 319. If this M. S. Dioscoridis had been published before the 16th century began, it would have saved a great deal of time to not a few of the learned.

9. I observe that the *Materia Medica* was little either improved or augmented by the succeeding Greeks, for (α) Claudius Galenus, born A. D. 131, and who died ætat. 70, 87, 98, or 105. *De Simplicibus Medicinæ fac.* l. 6, 7, & 8. gives the names and virtues of 540 (450. T. 12.) plants, (where scammony, succinum, and I don't know how many more are omitted, though mentioned elsewhere by him), of about 180 animal, and 100 mineral substances. (β) Oribasius, physician to Julian the Apostate, (who reigned from 361 to 363), only transcribes and abridges Dioscorides and Galen. (γ) Aetius Amidenus (circa ann. 500,) did scarce so much: hence both are called *Simiæ Galeni*. (δ) Alexander Trallianus (about 550) has more the air of an original writer, says Dr. Freind, who makes him the first that mentions our rhubarb, or gives steel in substance, in a scirrhus of the spleen. In most of the purges (in the gout) which he recommends, hermodactyls, of which he has a great opinion, and which Oribasius and Aetius but just mention, are the main ingredients. Vide *Freind. Hist.* vol. i. p. 37. How far right will be considered afterwards. (ε) Paulus Aegineta, (circa ann. 621), in his lib. 7. mentions about 570 plants, — mineral, and — animal substances. He has a *Betonica* of his own: and he, according to Dr. Freind, first took notice of the purging faculty of rhubarb. *An recte?* Vide *Freind. Hist.* vol. i. p. 114.

### LECTURE III.

10. **F**ROM the beginning of the 7th century, when the Latin ceased to be the vulgar tongue in Italy, until the restoration of learning in the 15th century, the knowledge of simples (or of the Greek *Materia Medica*), daily declined in Europe, and ignorance so tyrannized, that numbers of them deserted the shops and the cabinets too; some flying to Africa and Asia, and others to their original obscurity, where perhaps they still remain, and ever will. For,

“ From the time of Agathias, that is from 560 to the reign of Isaac Comnenus, there is a chasm in the Græcian history of 500 years; so that we know very little of all that interval, except what some slender account of the reigns of a few emperors, chiefly Mauritius and Heraclius, furnishes us with.” *Freind. Hist.* vol. i. p. 243.

It was during this period that learning, which formerly had passed from Asia into Greece, and thence over into Italy, again left Greece, Italy and all Europe, and in part returned into Asia: and Africa itself shared in it; for Mohammed



Mohammed commencing general as well as prophet, and propagating his delusions by fire and sword, made way by his conquests to the study of letters in countries where they were much neglected. "The common consequences, says Rapin, *Compar.* 1. 403. of power and prosperity."

The first Caliph of Mohammed's successors who shewed a passion for learning was Almanzor, second Caliph of the house of Abas, who began to reign about A. D. 755, and died in the 774th. The seventh Caliph of that race, Abdalla Almamoun, who began his reign in 815, perfected in a manner what Almanzor began. For having prevailed with the Græcian emperors to send him all the books in philosophy which they had, getting the best interpreters he could, he order'd them to be translated, encouraged the study of them, and delighted himself often with hearing the lectures and disputations. But it does not appear that the Greek was well understood till Honain's time, in or about 840, to whose family we chiefly owe the Arabic versions of Hippocrates, Aristotle, Euclid, Ptolomey, and Galen. Vide *Freind. Hist.* vol. ii. p. 8—19. But nevertheless,

11. These translations were far from being exact. "How ill these and all the rest of the Arabic translations were performed, and of how little use they are either to explain or restore the Greek text, Mr. Renaudaut fully informs us in the two epistles which Fabricius has published. And I believe one may venture to affirm, that the Arabian learning, however magnified by their own nation and by some European moderns, was entirely derived and borrowed from the Greeks: and this race of men was so far from making any progress in science, that whatever they translated or imitated was rather made worse." *Freind. Hist.* vol. ii. p. 19.

It must be owned however that we are indebted to the Arabians for the discovery of some useful simples, as fenna, cassia fistula, tamarindi, rhabarbarum, manna, galanga, zedoaria, zibethum, &c. as well as not a few useless ones, as bezoar, mumia, myrobalani, fantala, &c. And it was from the same race that all the learning of the schools was derived from the ninth century down to the year 1258, that Bagdad, which was founded by Abas, was taken by the Tartars. Yea, the works of the Greeks were scarce ever looked into, but by a very few, till the end of the 15th century. In the 11th century the studies of the liberal arts and natural philosophy were commonly called the studies of the Saracens.

"Long before the croisade, probably in the middle of the 7th century, there were Hebrew, Arabic and Latin professors of physic settled at Salernum, or Salerno, in the kingdom of Naples; which place grew soon into that credit, that Charles the Great thought fit to found a college there in the year 802." See more of the Arabians in Dr. Freind's History, particularly Vol. ii. p. 204 to 218, &c.

12. I observe that the compass being invented in the 14th, and printing in the 15th century, navigation became easy, and learning revived: and the many valuable simples soon brought from both the Indies did more than make up the loss of those stoth and ignorance had deprived us of. I might mention cacao, canella alba, china, contrayerva, cortex, guaiacum, jalapa, ipecacuanha, nicotiana, sarsa, sassafras, &c. which now replenish the shops. I elsewhere observe how much Theodorus Gaza, Hermolaus Barbarus, Ruel-

lius, and others contributed to the knowledge of simples, which I shall not here repeat, but conclude the Lecture with something concerning Leoniceus. Nicolaus Leoniceus Vincentinus was born in 1428, and died at Ferrara, where he practised physic 60 years, in 1524, ann. ætatis 96 : a surprizing age, since, as Scaliger says, *Epist.* 19, from his infancy to 30 years old, he was so miserably affected with the epilepsy, that he was weary of his life. "A pueritia, imo ab incunabulis ipsis ad 30 annum, morbo comitiali adeo vexabatur, ut cum ad se redierat, pertæsus vitæ, pene sibi manus violentas adferret. Sed post 30 annum, plane eo malo defunctus omnibus membrorum ac sensuum officiis integer, nulla morbi suspitione ad 96 annum pervenit." *Epist. Scaliger.* T. p. 24. "Cum aliquando ex eo quæreretur, quoniam arcano medico uteretur, ut tanto cum corporis et animi vigore, etiam nullo ciborum habito delectu, senectutis vitia eluderet: Vividum inquit ingenium perpetua vitæ innocentia, salubre vero corpus hilari frugalitatis præsidio, facile tuemur. Integris enim adhuc sensibus, memoria vegeta, nec dum incurva conspiciendus cervice obiit." *Linden. renov.* p. 837. His remarkable temperance, chastity, contempt of luxury and riches, are celebrated by Paulus Jovins, T. p. 25. I wish you may imitate him, and with equal success. He is said to have translated Galen into Latin. He wrote also *De Plinii et aliorum medicorum in medicina erroribus, &c. Ferrariæ* 1491. Vice always carries pains along with it; but "Integer vitæ scelerisque purus," &c. "Si rite perpenderent adolescentes, voluptatibus dementati, quod pro vero jucundis amplectantur mellita venena quanto studio caverent, ne quid per incogitantiam admitterent, quod in omnem vitam mordeat animam. Quid non facerent, ut hoc viaticum pararent senectuti, mentem sibi bene consciam, et famam nulla labe contaminatam? Quid autem illa senectute miserius, quæ cum respicit in tergum, magno cum horrore vidit, quam speciosa sunt quæ neglexit, quam fæda quæ amplexa est? Rursus eum a fronte prospicit, cernit imminere diem supremum, et ab hoc protinus æterna supplicia." *Erasm. Colloq.* 697.

## LECTURE IV.

### Of the OPERATION of MEDICINES.

1. "MEDICAMENTUM omne id dicimus, says Galen, *Simpl.* l. i. c. i. p. 2. "quod naturam nostram alterare potest: sicut puto nutrimentum quicquid substantiam augere refertur enim utrumque ad aliquid." Our bodies consisting of solids and fluids, the action of medicines must be either on the one or the other immediately, or in both together, by altering their quantities or qualities: but that every such change or alteration can be accounted for, from the solidity, figure and motion of the parts of the medicine, cannot be asserted.

2. The changes produced by medicines are either the natural effect of their physical powers, or the consequence of the impression made by them on the sensitive faculty, that is of the sensation they excite. When a medicine for  
instance



instance acts on the blood in the vessels, the same way it does on it when let out, heat and motion continuing the same, such action may be called physical, or mechanical, or chemical; and such are the effects of the diluting, attenuating, incrustating, condensing, sweetening, &c. medicines on the fluids; and of relaxing, contracting, lubricating, exasperating, corroding, &c. substances on the solids. But when the change produced is owing entirely or chiefly to the mechanism of the living body, and is the consequence of the stimulus excited by the medicine, which can make no alteration on a dead or paralytic body, or on any animal void of life, such effect cannot be called mechanical so properly. Thus a medicine which by thinning the fæces, and lubricating the intestines, evacuates by stool, purges more mechanically than such cathartics as operate by irritation only. Manna purges more mechanically than elaterium or the like.

3. The immediate impulse or action of any medicine on the part to which it is applied, may be also called the mechanic effect of that medicine, together with the force applying it: but the consequences of these are the effect of the sensation it causes, or the stimulus given the sensible fibres by the mechanism of the body animated. As in bleeding the mechanical effect of the lancet, moved with a proper force in a right direction, is only a small and clean wound, but the consequent pain, hæmorrhage, &c. flow from the structure of the body: so suppose one unaccustomed to tobacco puts a little of it into his nose, all the mechanical action of this is only a little friction, and perhaps some of its effluvia insinuated into the *membrana pituitaria*; but the consequences, as sneezing, a plentiful discharge of mucus, and sometimes giddiness, sickness, vomiting, flow from the present circumstances of the nervous system or animal œconomy, but cannot be called physical or mechanical; since no such symptoms would have followed, had the person been a common snuffer of tobacco.

The great Creator of all has so framed and qualified our curiously-wrought machine, that when any thing hurtful or irritating is formed in it, or applied to it, such motions, contractions, or convulsions are excited, as may most effectually expel it or blunt its acrimony. Hence we see that fevers and spasms, natural or artificial, prove often the best cures in the worst of distempers.

These mechanical or quasi-mechanical operations of medicines I call their primary, and the consequences the secondary virtues; which ought to be carefully distinguished. I observe,

4. That a medicine applied to one part of the body has often very different effect from what it has when applied to another: or different parts may be very differently affected by the same simple. Sugar is sweet in the mouth, but irritates the nose. Cold water is a good drink, but bad clyster. Opium bites the nose, but not the stomach. Antimonial emetics irritate the stomach, but not the mouth, &c. Yea, the effects even of the softest titillation, of unusual though gentle motion of the body, of sudden impressions on the mind, violent passions, of natural antipathies, &c. often exceed the action of the strongest medicines. Thus stroaking only the upper lip with a feather commonly causes sneezing, that is a sudden convulsion of many strong muscles; as tickling the throat with it will make one vomit. The consequences of turning round quick and for a long time, of going to sea, of sud-



den anger, &c. are commonly known. The smell of musk occasions fits in some; the sight of a cat proves sudorific to others; and so on. No wonder then that a very slight stimulus in some more noble and sensible parts should either cure or cause diseases. N. B. *Virus viperæ*.

And such is the structure and peculiar sensation of the stomach, that many substances, which no other way appear acrid, affect it so as to cause convulsions, deliriums, palsies, blindness, lethargies, and death itself, if not soon enough expelled; such as hyosciamus, cynoglossum, cicuta aquatica, &c. I know these symptoms are attributed to their effects on the blood, or on the spirits, or the origin of the nerves in the brain by their narcotic quality; but since by repeated experiments it appears that such symptoms (I do not reckon death a symptom) have appeared before the narcotic was gone out of the stomach, or was dissolved in it, yea even before it had any observable effect on the stomach itself; and also so soon as the narcotic was vomited up, all the symptoms disappeared. I neither see how the blood, animal spirits or brain could be vitiated, nor, if they were, how a vomit should so soon recover them. N. B. A delirium following an anodyne clyster, and death another. But to proceed, I observe,

5. That habit or customary use diminishes commonly, and sometimes almost quite destroys, the strength of some very powerful medicines, yea virulent narcotics; while natural or accidental aversions turn otherwise wholesome aliments into a kind of poisons, *i. e.* what nature cannot concoct, and with great difficulty expels. Every body knows the effect of smoking tobacco, when one begins to use it, and how agreeable custom makes it. A few grains of opium will poison one who never took it before; but use, in time, will render drachms safe. Lobsters, crabs, oysters, eggs, are delicious food with many; while some cannot taste one or more of them without vomiting. Yea, what may be very agreeable and wholesome to a person at one time, may be hateful and hurtful to him at another. I like cabbage very well now, but remember when the smell of one was hateful, and disposed me to vomit. Before I had the dysentery I made great use of honey, but the first time I tasted it afterwards, although mixed in a small quantity of aqua vitæ, it gave me such a severe cholic that nothing could remove, till I provoked vomiting with warm water.

Now since custom or habit can never alter the nature of things or the physical action of bodies on one another, we see that we need not have recourse to the bad state of the juices to account for the effects of the most efficacious medicines and narcotic poisons. Hence also we may see one final cause why the bountiful Author of nature has afforded us an immense variety of medicamenta, as well as alimenta, *viz.* to suit the different circumstances as well as wants of his creatures. There are many astringents, for instance, which agree much in virtues; but can any say that they agree in every thing? or that one might serve for them all? By no means: our very taste can discover a difference; so they may have very different specific qualities. Were we at sufficient pains to discover these in simples, we might find remedies for diseases for which we now have none. And lastly, I observe,

6. That we cannot make a right judgment of the operations of medicines, without being well acquainted with the simples themselves. What this

*cognitio simplicium* is, and its usefulness, are well explained in Conringius, I mean, *Hermanni Conringii introductio in universam artem medicam*, especially the edition with Fred. Hoffmannus his preface, Halæ et Lipsiæ, in 1726; wherein besides Schelhammer's *additamenta*, and Hoffman's preface, we have Bartholinus, Castellus, Rhodius, Van-Der-Linden, on the same subject. It is in 4to. Vid. c. 8. § 3. p. 259, &c. Briefly,

The *simplicium medicamentorum cognitio*, includes; 1. The knowledge of the names of simples, *i. e.* not only of the medicinal names, but of such also as the most approved natural historians give them, in order sufficiently to distinguish the designed species from all others of the same genus. This is necessary in order to our consulting with, and understanding, foreign authors; to prevent dangerous mistakes, and ridiculous blunders. *N. B.* *Armoracia*, *Carabe*, *Sandaraca*, &c. This is the more to be insisted on now, as many of the most proper and common names are omitted in the Dispensatories. Neither are the etymologies to be neglected, because they often direct the right pronunciation, and sometimes discover the original of vulgar errors. *e.g.* *Cynorrhodos*, κυων and *perides*; *cyperus*, κυπερος, a κυπαρος, *vas rotundum*; *Cotyledon*, κοτυληδών, a κοτυλη, *cavitas*; *polygonum*, *propolis*, *pyrethrum*, *hydrargyrus*, *saxifraga*, *lithospodium*, *lysimachia*, &c. “*Herbam hanc Lysimachus rex ad sanguinis eruptionis cohibendas facere casu quodam comperit. Quum enim equus ejus vulnus accepisset, sanguisque erumperet, hanc herbam, quæ erat ad manus, quamque rex ignorabat, vulneri admovit: ea eruptione sedata, omnes postea ad sanguinis eruptiones ea usi sunt, et ab inventore Lysimachiam herbam appellaverunt. Invenit et Lysimachus herbam Lysimachiam, quæ ab eo nomen retinet, celebrata Erasistrato. Vis ejus tanta est, ut jumentis discordantibus, jugo imposita, asperitatem cohibeat.*” *Plin.* l. 25. c. 7. p. 636. and *Oribasius Collect.* l. 15. p. 502. — 2. This knowledge ought also to include a distinct idea of the *facies externa*, consistence, weight, taste, smell, &c. of every simple; and in a word, whatever is necessary to distinguish one from another; to know when it is fresh and good, and when not; or can any way assist in discovering its nature; and consequently to what kingdom, tribe and family it belongs; where it is produced, how sophisticated, and the like. — And 3. as the most necessary branch of this knowledge, their use in medicine, which is not so easily acquired as is generally believed. For unless we are acquainted with the various ways of discovering the qualities of bodies, and how they act on one another, authors differ so widely about the virtues of simples, we shall never be able to acquire any certainty concerning them: but of this more afterwards. — And lastly, 4. The preparations and doses of simples must be known, if we would reap any benefit even by the knowledge of their virtues: for if we are ignorant how and in what quantity a medicine ought to be taken in order to a designed effect, we know nothing of it to any good purpose, and may as readily do ill as good by it. “*Esculenta conservant, venena resistunt sanitatem. Alimenta a toxicis, uti medicamenta a venenis, non natura, sed dosis distinguit,*” are two of the canones prefixed by C. Linnæus to his *Materia Medica*, p. 1. Amster. 1749, in 8vo, which can be admitted only *cum grano salis*. If he can dose arsenic so as to be nourished by it, *crit mihi magnus Apollo*.

Since



Since I mentioned the different kingdoms to which simples belong, allow me briefly to explain what is meant by them. The most general division of bodies, or corporal substances, is into minerals, vegetables, and animals, which are called the *tria naturæ regna*. Each of these are divided and subdivided into classes, orders, genera and species, according as they agree in fewer or more of their essential constituent parts. But nature not having pointed out any fixed method of classing them, the learned have devised a variety of artificial methods, as their fancy dictated. The last attempt, that I know of, that has been made of this kind, is that of Carolus Linnæus, the famous Swede, in his *Systema Naturæ*, published first in 1735 at Leid. and since several times reprinted. The last edition has this title: *Caroli Linnæi Archiatri reg. Med. et Bot. Profess. Upsal. Systema naturæ, sistens regna tria naturæ, in classes et ordines, genera et species redacta, tabulisque æneis illustrata, secundum Stockholmiensem emendatam, et auctam editionem. Lipsiæ 1748, 8vo.* The dedication is dated *Upsal. 18 Augusti, 1748.* Were it not for the too wanton innovation of names and terms, which the author seems to pride himself in, this might be useful to such as have time and taste for his method, which I have not. Let it suffice here to observe,

That the vegetable kingdom being naturally situated between the mineral and animal, botany obliges me in the summer to enquire a little into the limits of each, which Linnæus's description does not settle. "Lapides crescunt," says he, *Fundament. Botan. § 3*; vegetabilia crescunt et vivunt; animalia "crescunt, vivunt et sentiunt." It is therefore enough here to notice, that since both vegetables and animals are curiously organized, whatever simple is not an organic body, neither of, nor produced by, an organized body, may be called mineral; and that all bodies wherein we cannot discover containing vessels, and contained fluids, are to be reckoned not organized.

"Res macrocosmicas, (*i. e.* fossilia,) voco quæcunque extra familiam vegetabilium et animalium collocantur." *Schrod. p. 321*, which I prefer to *Dale, p. 13.* to which he adds, "Metallum perfectum interitus haud capax est, in varias formas transeat vi ignis, vel artis, vel ævi; metallum tamen manet, et pristinam faciem prompte induere potest." *Nobis non licet esse tam felices. Homo ipso metallo vilior.* But Cicero writes more like a philosopher in the person of Cato: "If some God, says he, would offer me at this age to be a child again, and to cry in the cradle, I would earnestly refuse it. And now that my race is almost run, and my course finished, how loath should I be to be brought back, and made to begin again. For what advantage is there in life? yea rather, what labour and trouble is there not in it? But let the benefit be what it will, there is certainly some measure of life, as well as of other things; and men ought to know when they have enough of it. For I am not disposed at all to complain of the shortness of life, as many even learned men have often done: nor do I repent or am troubled that I have lived; because I have so lived, as to have reason to think I have not been framed by nature in vain; and I so leave the world as it were an inn, not as my home; for nature has afforded here only a lodging to sojourn in, but no fixed habitation to dwell in. O glorious day, when I shall go to that great council and assembly of spirits, and have got out of this croud and rabble." Or



in his own words, "Quod si quis Deus mihi largitur, ut ex hac ætate re-  
 "puereſcam, & in cuius vagiam, valde recuſam; nec vero velim, quaſi de-  
 "curſo ſpatio, ad carceres a calce revocari. Quid enim habet vita commodi?  
 "Quid non potius laboris? Sed habeat ſane. Habet certe tamen aut ſatie-  
 "tatem aut modum. Non lubet enim mihi deplorare vitam, quod multi, &  
 "ii docti, ſæpe fecerunt. Neque me vixiſſe pœnitet; quoniam ita vixi, ut  
 "non fruſtra me natum exiſtimem, & ex vita ita diſcedo tanquam ex hoſpi-  
 "tio non tanquam ex domo. Commorandi enim natura diverſorium nobis,  
 "non habitandi dedit. O præclarum diem cum ad illud divinum animorum  
 "conſilium, coetumque proficiſcar, cumque ex hac turba & colluvione diſ-  
 "cedam, proficiſcar enim, non ad eos ſolum viros, de quibus antea dixi, ſed  
 "etiam ad Catonem meum, quo nemo vir melior natus eſt, nemo pietate præ-  
 "tantior, &c." "When I ſhall be gathered to all thoſe brave ſpirits who  
 "have left this world, and meet with Cato the greateſt and the beſt of men."  
 Vide *Tillot.* vol. viii. p. 61. And, to the ſhame of ſome in our days, a little  
 below the ſame Cicero adds, "His mihi rebus, Scipio, levis eſt ſenectus,  
 "nec ſolum non moleſta, ſed etiam jucunda. Quod ſi in hoc erro, quod  
 "animos hominum immortales eſſe credam, lubenter erro; nec mihi hunc  
 "errorem, quo dilecto, dum vivo extorquerere volo. Sin mortuus, ut qui-  
 "dam minuti philoſophi cenſent, nihil ſentiam: non vereor ne hunc erro-  
 "rem meum mortui philoſophi irrideant." Vide *Cicero de Senectute*, p. 1371-  
 2. edit. *Gronov. Lugd. Bat.* 1692. 2 vol. in 4to. And

Thus Scipio; "Old age to me is eaſy, yea not only not troubleſome but  
 "delightful. But if in this I am miſtaken, that I believe the minds of men  
 "to be immortal, I am pleaſed with my error; nor will I part with it while  
 "I live. If when I am dead, as ſome little obſcure philoſophers imagine, I  
 "ſhall know nothing, I am by no means afraid of being laughed at, or have  
 "this error ridicul'd by the dead philoſophers."

The principal arguments for the vegetation or rather growing of minerals  
 are taken (α) from the poſition and figure of the metallic veins; (β) the form  
 in which gold or ſilver are often found, as of hairs, herbs, trees, &c. (γ) the  
 real growing of lead, tin, iron, which is ſtrongly aſſerted by Agricola, Cæſal-  
 pinus, Fallopius, &c. Vide *Plin.* lib. xxiv. c. xvii. p. 825. *Hoffman. in Schrod.*  
 p. 228. (δ) Stones increaſing ſenſibly in bulk, even in the memory of man,  
 as in Femara or Femeron, an iſland in the Baltic ſea. *Albinus.* (ε) the marble  
 trees in the grotto of Antiparos. Vide *Tourneſ. Voy.* let. v. p. 71. (ζ) the  
 conſtant and regular figure of many ſtones, of the ſame grain and conſiſtance,  
 though of different ſizes; as the lapides judaici, belemnites, aſterix, &c.  
 (η) ſome ſtones at leaſt, which are called petrifications, but cannot be ſuch, as  
 camerarii 60 maxillæ. Vide *Albini Oratio Inaugur.* L. B. 1719. in 4to. à p. 32.  
 ad 42. Some think water tranſmutable into earth, air condenſible into a ſolid,  
 and fire itſelf fixible in bodies ſo as to increaſe their weight. But whether  
 the growth of minerals, if real, is more analogous to criſtalliſation or accre-  
 tion, than to nutrition, let others determine.

*Theophrastus, de Lapidibus*, after mentioning the magnet and touch-ſtone,  
 ſubjoins, Θαυμαſτιωτάτη δὲ καὶ μεγίſτη δύναμις, ἐπεὶ ἀληθὴς, ἥτων τιχτῶν.  
 "Mirabiliſſima autem & maxima vis, ſi modo vera, eorum qui pariunt."  
 Hence *Pliny*, lib. xxxvi. c. xviii. p. 873. "Theophrastus & Mutianus, eſſe  
 "aliquos lapides qui pariant, credunt."

## LECTURE V.

## OF ERRORS concerning the MATERIA MEDICA.

IN order to acquire a sufficient certainty concerning the nature and use of simples, it is necessary to inquire into the causes of errors, and mistakes about them in the first place; and then how they can be corrected.

The causes are, 1. Our ignorance of the simples used by the ancients, while we give their names and virtues at random too often to other substances than were designed by them. “Facilius mehercule est,” says Boerhaave, *Pref. in Ind.* p. 12, “sphingis ænigmata extricare, quam expedire quamvis ex stirpibus nobis jam notis, suis nominibus antiqui intellectam voluerint.” And this is the case with, perhaps, more than a third part of the simples to which the virtues of the ancients are commonly ascribed. And, 2. Our yielding too implicit faith to their opinion, as if it were a sort of heresy to dissent from them.—For the common standard for the virtues of simples, for more than a century, has been *Johannis Schroderi Pharmacopœia Medico-Chymica*, first printed I think in 1641. reprinted six or seven times before 1678, with various amendments and additions, and numerous encomiums by the learned: It was commented on by Hoffman and Etmüller: it is printed in folio, *illustrata & aucta*, by Mangetus, Genève, 1677. Even Dale, Geoffroy, &c. keep pretty close to it: and yet the virtues there are but a compendium of Dioscorides and Galen, with some additions from the Arabians; although it is certain that the simples which are rightly named, and the same which the ancients designed by those names, seldom deserve the praises they give them. “Quanquam veterum comprimis Græcorum scripta longe sint præclarissima, in multis tamen tuto iis non possumus niti, quod complura ab illis laudata, non satis nobis sint cognita, neque nos semper deprehendamus, in quod tamen veteres illa laudaverunt. Qua propter non levis cura hic adhibenda, ne per vetera nomina, nostris medicamentis communia, decipiamur.” Vide *Conring. Introd.* c. 8. §. 15. p. 266. N. B. *Agaric, pœonia*, &c.

3. Another source of errors is the too common neglect of natural history. How few apothecaries, or even physicians, are so well acquainted with the simples as they ought to be? Thus while the prescriber trusts the dispenser, and the dispenser the collector, gardener or herb-woman, no wonder if *quid* be taken for *quo*, anonis for melilotus, hydrocotyle for cotyledon, absynthium maritimum for a. romanum, &c. and the effects of one simple attributed to another.—4. The mistaking the natural event of a disease, for the effect of the last administered medicine. It is a lucky remedy, as he is a fortunate physician, that is last employed when the patients recover, however little either have contributed to the cure. Hence ignorant quacks, if cautious, are often preferred to learned physicians; and simples believed to answer opposite indications. N. B. *Kermes, bezoar, sal. c. c.* &c.—And, to name no more,—5. The avarice of travellers, merchants, and too many retainers of medicine. New medicines are commonly introduced with extravagant encomiums, and many



many are so fond of novelties as too easily to believe them. We are fond of secrets, and greedily hunt after arcana, though when discovered, we have reason commonly to despise them. "Arcana revelata sc̄tent," said Boerhaave : and experience has confirmed this not many years ago. Need I add also that what we like we readily believe good and wholesome, both for ourselves and for others ; as tea, coffee, wine, &c. So much for the causes of errors : let us now see how they may be avoided, and a sufficient certainty concerning the nature and qualities of medicines attain'd. And here I shall first consider what has been done in order to this ; and then what may be done.

First then, among the attempts made to discover a certain method how the real virtues of simples may be discovered, that of the *signaturæ philosophæ*. is one. For according to Paracelsus, Porta, Crollius, and other enthusiastic chymists, man being *mundi dominus* all other creatures are designed for his use, and therefore their beneficial qualities, and excellencies, must be expressed by such characters as can be understood by every one ; otherwise they might as well want them. And as man discovers his reason by speech ; and brutes their sensations by various sounds, motions and gestures ; so their being a vast variety and diversity of figures, colours, consistances, &c. observable in other creatures inanimate, is certainly designed for some wise end : it must be in order to manifest these peculiar qualities, and excellencies, which could not be so effectually done any other way, not even by speech, no language being universally understood. Such remedies they call signatures, and say, 1. That substances representing animals have the signature of, or thus discover, their being remedies for the diseases such animals occasion. *Ex. gr.* Dracontium resembles a serpent ; doricum, a scorpion ; psyllium, fleas ; spina alba, serpents teeth, &c. *Ergo*, 2. Substances resembling any part of the body, have the signature of specifics for such parts : as juglandes, the head ; pæoniæ folium, gemmæ, the encephalum ; agaricus, a fungus of the brain ; cassia fistula, the guts ; satyrion, the testicles ; alkekengi, the bladder ; aristolochia, the uterus ; radix cava, the kidneys ; citria mala, the heart, &c. 3. That some bear the signature of the humors ; as flores rosarum, anagallides, balustia, radices anchusæ, rubiæ, tormentillæ, &c. resemble blood ; radices acetosæ, rhabbarbari, curcumæ, crocus, cortices aurantierum, succus chelidonii, &c. bile, radices asari, filicis, hellebori nigri, &c. melancholy : succus cucumer. asinini, colocynthidis, atriplicis, cucurbitæ, mercurialis, &c. phlegm. *Ergo*, 4. That we have signatures also of diseases, as flores lilii convallium, resembling a gutta pendula, have the signature of the apoplexy ; convallulus, of the iliac passion ; tantalum rubrum, corallium, hematites, &c. of hæmorrhages ; acetites, of abortion, rather of pregnancy. You have more of this stuff in Paracelsus, *De natura rerum* ; B. *Portæ Physognomia* ; Crollius *de Signaturis* ; T. *Quercetanus de signaturis rerum externis & internis*. But D. Senneretus *de consensu & dissensu Galenicorum cum Chymicis* may serve for all.

For since 1. the most efficacious remedies have no signature, as cantharides, apium, cortex, mercurius, antimonium, &c. and 2. many notable signatures discover no quality, as the flores orchidum, antirrhini, leguminum ; sem. phaseoli, corindi, siliquæ, fænugræci ; folia gladioli, acori, &c. 3. Many of contrary qualities have the same signature, as succus scorzonæ & tithymali, radices tulipæ & scillæ, asphodeli & pæoniæ, filipendulæ & oenanthes ; con-



volvulus & lupulus, &c.—And 4. Many of the same nature and different signatures, as the white and red brassica, cepa, beta, rosa, corallium, &c. It is very plain that signatures are more easily found from the virtues, than the virtues from the signatures; which therefore can be of no use in medicine.

But the chymists, who are more rational, have also attempted the solution of this grand problem by what is called their chymical analysis: for observing that by the force of fire there may be got from almost every simple, phlegm, oil, salt and earth, these they call their constituent principles, or *elementa chymica*; by the nature and proportions whereof, it was expected the nature and qualities of bodies would easily be discovered.—“By the methods of operation, which chemistry has introduced, both physic and natural philosophy have been greatly advanced. No art has furnished better mediums for discovering the composition of bodies; for as heat is a primary agent in all natural operations, and fire one of the great dissolvents of bodies, no art is fitter for detecting the internal constitution of things. It has also furnished us with the most powerful remedies, as it has put into our hands some of the active principles, by which the changes in nature are wrought, less clogged and obstructed from action, than in the usual compound bodies, that come in our way.” *Pembert. Dispens.* p. 27.—But sure the virtues of medicines can never be discovered by a chemical analysis: For,

1. Plants as different in nature as aliments and poisons yield sometimes the same principles, both in quantity and quality; as brassica and belladonna. Vide *Homberg, in Mem. Academ.* 1701. Sinapi and opium differ as little in their analysis.

2. It is impossible by reuniting the principles to reduce a substance of the same nature with the concrete, whether vegetable or animal. *N. B.* The cortex, &c. And,

3. The specific qualities of the simples are intirely destroyed by the fire; and if the contrary be supposed, it would be as difficult to discover the virtues of the oils and salts thus obtained, as of the bodies analysed. “*Hoc cum,*” says, *Pentidera, Dissert.* iv. p. 4. (having mentioned the analysis brassicæ & belladonæ,) “animadvertissent Parisi academici, analysin præclaris illis verbis constantissime repudiarunt.—Videtur igitur, inquiunt, tot plantarum analysisibus, nullum alium fructum percipere academiam, nisi quod detecta sit hæc veritas, nihil nempe certe posse per analysin haberi; quod pulcherrimum est academix.” And a much later author. “Multum laborem insumpsit regia scientiarum academia, in analyses plantarum, quas scilicet distillandas curavit, perficiendas; sive recentes, sive jam fermentatas. Sed quam pauca inter eas, quæ ex tot diversis plantis extrahuntur substantias, reperiuntur discrimina.” *Geoff. Mat. Med.* vol. i. p. 32. See also what this learned chymist observes on the analysis of tartar, vol. ii. p. 762, and of the extract of lettuce, vol. iii. p. 646.

I might add, 4. That you will seldom find two analyses, made of the same substance, tolerably agree. Compare the analysis in Lemery with Mr. Geoffroy's, made of ambergrise. I thrice made an analysis of opium; but no two analyses agreed in the proportion of the principles.

Another method proposed for discovering the virtues of plants is taken from botany. This science was no sooner methodis'd than a notable agreement in the virtues of the species of the same genus, and not seldom in the genera of the

the same order was observed. And hence botanists too precipitantly concluded that “quæ genere conveniunt etiam virtute conveniunt. Tandem & facultates quas medici maxime querunt, tanquam proprietates, innotescunt ex naturarum cognitione: quæ enim societate generis junguntur, plerumque similes possident facultates.” *Cæs. in Dedicatone*: And to the same purpose, *Col. ii. p. 63.* “Ex his recta fieri poterit substitutio medicamentorum, tam nostratum, quam exoticorum, si flore & fructu respondebunt, eo que magis odore & sapore.”

But to depend on this method alone would be of dangerous consequence: for the species of the same genus, even in Linnæus’s method, frequently differ widely in all their medical qualities; yea and also in the parts of the same species. I might give a hundred instances; but of this vide *Dissertat. de re Herbaria*, p. 63, &c. and many will afterwards occur. Some have pretended also to discover the qualities of plants by their *locus natalis*, yea and colour too. As for the use of our taste and smell in this enquiry, I shall delay noticing their effects, until I have considered, how they are to be employed, and of what service they are.

How then is the wished-for certainty to be obtained? I answer, 1. By carefully examining the simples by the taste and smell; and in plants conjoining, taking the assistance of botany as far as it will go. — 2. Chemically, not by analysing them, but by various mixtures, chiefly with known fluids. 3. By their effects on the surface of the body, or outwardly on the blood and other animal substances. 4. By comparing them with one another; and, 5. Critically examining the observations of authors concerning their good or bad effects. By one or other of these ways all the errors concerning the *Materia Medica* may be corrected, and the genuine virtues of simples discovered. But more particularly I say,

1. That the right use of our taste and smell is of great use in discovering the virtues, and in detecting the errors concerning the simples. To say nothing of the use of these senses to other animals; the ancients seem principally, if not solely, to have depended on them, in their enquiries after the qualities of remedies. “Ex agrestibus oleribus,” says Hippocrates, *De Dieta*, lib. ii. p. 359. lin. 54, *Foes. editionis*, “quæ os calefaciunt, & odorata sunt, ea calefaciunt, & urinam potius quam alvam movent. Quæ vero humida sunt natura & frigida ac insipida, odore que gravi, per alvum magis quam per urinam secedunt. Quæ acerba & aultera alvum sistunt. Quæ acria & odorata urinam provocant. Quæ acria sicca sunt in ore ea omnia siccant, Quæ acida refrigerant.” Which book is one of Hippocrates’s genuine works as Galen owns, lib. i. *Simpl.* who lib. iv. *Simpl.* c. xxiii. p. 31. D. thus writes, “In gustu omnes gustabilium corporum particulæ in linguam incidunt, sensumque movent pro sua natura singulæ. Quare certum tutumque non est de tota medicamentorum facultate ex odore conjicere. Multo minus ex coloribus de medicinarum virtutibus colligere quid valeas. Optimum sane per experientiam discretam facultates invenire; quanquam prius quam experientia virtutem agnoscas, gustus pleraque indicet, paulum etiam approbante ipso odore.” And to the same purpose Paulus, lib. vii. c. i. p. 609. “De sensiliis corporum temperamento conjecturam facere, neque ex odore firmum est, neque ex coloribus. At vero in gustu



“ omnes partes corporum, sapore præditorum, linguæ occurrunt, & sensum  
 “ movent, ut ex ipso manifeste etiam facultates ipsorum in temperamentis  
 “ reperiantur. Quod igitur adstringet, id ipsum cogere, obstruere, den-  
 “ sare, repellere, crassescere, insuperque, frigescere, & siccare potest. Quod  
 “ vero acidum est, secare, dividere, attenuare, aperire, & perpurgare, citra  
 “ calefactionem: quod autem acre est, attenuat, purgat, calefacit.” And so  
 goes on to explain the action of the amara, aquosa frigida, falsa, dulcia, &  
 oleosa, according to the doctrine of the times.—Without enquiring into the  
 final causes of these senses, or whether the stomach or mouth are affected the  
 same way, it is pretty observable,

1. That simples agreeing in taste and smell seldom differ in virtues, and *vice versa*; inasmuch that every species of the same genus, and parts of the same species, which differ in taste and smell, differ also in their nature and qualities. As absinthium vulgare and absinthium insipidum, persicaria acris and persicaria mitis, sedum minus and sedum minus acre, cucumis and melo and colocynthis (all *congeneres Linnæo*), balsamina mas and cucumis asininus, botrys and atriplex foetida, aloë succotrina and aloë Americana, cinnamomum and saffra, ranunculus acris and ranunculus dulcis, &c. And as for parts of the same species that differ in taste and smell, as well as virtues, we may instance the flores and fructus of the pruni sylvestris. Vide *Will. Bernb. Nebelii Obs. de Prun. Sylvest. ut Cortici Succedaneo. Art. Physico-medico*, vol. v. p. 393. Fructus & cortex mori, berberis, cerasi, pyri, &c. Radix & folia absinthii, acetosæ, aristolochiæ, &c. Folia & fructus capsici; folia & radix zingiberis, &c.

2. When simples lose or change their taste, they also lose or change their virtues; as is evident in arum, iris, cochlearia, raphanus, scilla, &c. yea in wines, oils, eggs, &c. whether it be by drying, coction, age or putrefaction.

And, 3. That with relation to the vegetable simples, such as agree both in taste and smell, and also are species of the same genus, agree also in virtues. This is so general a rule, that I know not yet any exception to it.

Hence always I suspected the virtues of the pastinaca aquatica being nearly allied to the cicuta aquatica *Gesneri*; as also of the anthora, doricum, aconitum, and arnica. That the arnica is virulent appears by its effects, as will be shewn afterwards. The anthora is very bitter, and generally said to be violently purgative and emetic. “ Quis credat radicem purgantem auxiliari omnibus cordis affectibus, aut conveniat morsis a viperis?” *J. B.* vol. iii. p. 661. He says also, “ Forte Mathiolus habuit copiose missas Constantinopoli, quas cupiebat divendi causa dum tantopere eas extollit.”—*N. B.* Radix gustu amara, gulam constringens,—saporis amari acris,—amarities, seu potius acro-ingens. Vide *Geoff.* vol. ii. p. 9.—If the pastinaca aquatica give the same taste as the cicuta aquatica, though Linnæus separates it from the sium, I could pronounce it of the same nature as the cicuta virib. sili latifolii, (B. P.) “ experiri nunquam ausus sum, ob similitudinem quam habet cum cicuta Gesneri,” (*B. Hist. Plant.* p. 90.) “ Sium aquaticum quodcumque egregium est medicamentum, in tumoribus mammarum scrophulosis, extrinsecus adhibetur,” *R. Syn.* 217, which seems to point out a narcotic quality in it.



## LECTURE VI.

HENCE also our senses, rightly used, will enable us to reconcile many differences among authors, with regard to the virtues and doses of some simples, as of iris, arum, asarum, &c. as well as to correct many errors. I shall instance only here in the shepherd's-purse, or,

*Bursa pastoris* major folio sinuato, B. P. This herb is made strongly astringent by almost every author; and also, excepting Lacuna, Lobel, Hoffman and Boerhaave, cooling. It enters the decoctum astringens, *Cod. Med. Paris.* 1732. *Empl. Defensivum Pb. Edinb.* 1744. "Est ex refrigerantium, "exsiccantium & adstringentium genere, &c." *Matb.* 429. "Refrigerat, "siccat, adstringit, & constipat." *Schrod.* p. 550. So also *Lenery, Dale, Miller, Geoffroy*, &c. — "Omnes botanici dicunt, esse plantam frigidam quia hæ- "morrhagiam compescit, & styptica est, vasa roborat & constringit. Sed an "ideo frigida dicenda? Alcohol sanguinem sistit, sic & ferrum candefactum. "Præterea sapor adeo acris, ut si contrita folia manui applicentur, fere in- "flammationem faciunt. Hæc planta convenit in sputo sanguinis, hæmorrha- "giis quibuscvis, diarrhœa, dysenteria, mictione cruenta, nimio mulierum "fluxu." Thus *Hist. Pl.* falsely ascribed to Boerhaave, p. 416.

"Boerhaave also is extremely cautious in the use of this herb; he thinks "it has not any very great degree of astringency, but that it is of a hot fiery "nature, and stops fluxes and hæmorrhages by coagulating the juices, like "alcohol, and burning or searing the orifices of the vessels (he had said be- fore "Juncker esteems it so powerful a styptic, as scarce to be safely exhibited "internally," then adds Boerh. &c.) "The sensible qualities of shepherd's- "purse discover little foundation for either of these opinions; it has no per- "ceptible heat, acrimony, pungency, or astringency; the taste is merely "herbaceous, so as sufficiently to warrant the epithet given it by Mr. Ray, "fatuum." Thus the *New Dispensatory* in 8vo. (said to be done by Mr. Lewis, which I shall not here characterize.) Lond. 1753, p. 100; though I cannot but observe, that it is unjust to ascribe to the great Boerhaave any thing on the authority of the blundering author of that injudicious performance, who seems to have been one of the most ignorant of his hearers, and which the learned professor expressly disowned.

But what more directly reflects on the author of the *New Dispensatory*, is his attributing to Boerhaave, what is not even in that spurious history. All that can be inferred from it, even supposing it genuine, is that shepherd's-purse, though it stops bleeding and is styptic, is not thence to be concluded cooling, for alcohol and hot iron do the same; and that it is so hot, that bruised and applied to the hand it will almost inflame it. Besides, if Mr. Lewis had tasted the flowering tops of this plant, he would have found a perceptible heat, acrimony and pungency, which was observed long ago by Lacuna and Lobel.—*C. Hoffman*, p. 136, says, "Qui frigidam esse vocant errant. Si quis objicere "volet saporem insipidum: dicam multipliciter sæpe falli gustum in his, præ- "cipue,

“cipue, cum in inferioribus plantæ partibus aliud est, aliud in summis. ”But to proceed.

I say the taste shows it not to be astringent, but of the same nature with the erysimum, and one of the English names it has in *Gerard's Herbal*, is poorman's parmacetie; for the leaves of both are of an herbaceous taste, more than in many other such herbs, as turneps, charlock, brassica, &c. but the flowering tops of both are acrid, or hot and biting; and all the plants putrescent and alkaline; which astringents are not. Besides neither juice nor infusion do redden the blue paper, with which sugar loafs are covered; nor turn a solution of vitriol black or purple: neither do its ashes yield any alkaline or fixed lixivial salt, but like other acrid and alcalescent plants a neutral salt. I speak from my own experiments: believe T. and Geoff. who will. I calcined burfæ pastoris recentis lbij, after it was dried and weighed but 3xij, and had of ashes 5x, gr. lviii, which yielded salis falsi, non alcali 3ifs, gr. ij. So the testimony of our taste is sufficiently confirmed. And I cannot imagine why it was ever reckoned astringent, if it be not because it has been mistaken for some styptic plant of the antients. “Guido, nimis litentiose Galeni locum “interpretans, ait polygonum esse virgam, vel burfam pastoris. Polygonum “& bursa pastoris multum differunt.” *J. B.* vol. ii. p. 926.

If it be said it stops fluxes and hæmorrhages, *ergo* astringit, *C. Hoffman*, &c. *Galen* denies the consequence. “Quidam medicamenta nonnulla, ex eo quod “diarrhœis & dysenteriis medentur, adstringere ea colligunt, quanquam ne “minimum habeant adstrictionis; imo prorsum contrà rarefacientia nimium “sunt & laxantia, cum alioqui quæ astringunt, corpora contrahant, conden- “sent, constipent, atque constringant.—Nam adeps caprinus adstringentibus “diversissimus est, veluti etiam farina triticea & amyllum, & innumera eorum “quæ vim habent tum emplasticam, tum mitigatoriam, atque acrimonias “hebetandi; eaque ratione iis qui acria mordaciaque per alvum excernunt, “auxiliantur.” *Galen.* vol. i. *Simp. Med.* c. xxxiv. p. 8. Spiritus vini, aqua calcis, acetum, opium, diuretica, cathartica, &c. have cured these oftener than astringents.

But Messrs. Tournefort's and Geoffroy's experiments confirm its astringent. I answer, they don't appear very consistent with themselves, nor with one another, nor with the trials I made. “Bursa pastoris is of an herbaceous “taste, somewhat saltish and glutinous. “T. Saporem herbaceum subsal- “sum, non nihil astringentem, aliquantisper glutinosum, refert.” “G. The “juice of the leaves reddens a-little the blue paper.” “T. Rubro tinget co- “lore.” “G. This plant by a chymical analysis does not yield much acid, “all that is drawn from it is almost alkaline; few plants give more volatile “concrete salt, more fixed lixivial salt, and more earth.” T. Makes sal am- moniac to predominate in it. G. Translates. T. But joins an aluminous salt to the ammoniacal, and so is satisfied, or takes it for granted that it is astringent. But T. accounts for it thus: “These principles united fit it for “dissolving the blood, when thickened by acids, which hinder its passing “from the arteries into the veins with its ordinary celerity, to which most “part of fluxions are to be attributed: besides, its earth easily imbibes the “serosities, which relax the fibres; so by the consent of all authors it is vul-  
nerary



nerary and astringent." Vide *Tournef. Hist. Pl.* p. 11. *Geof. M. M.* vol. iii. p. 233.—*N. B.* What Dr. Blair's observation, &c. *supra*, is founded on.

If the bursa pastoris was the only instance of such errors, it would not have deserved notice; but you will find not a few more generally numbered among astringents (to keep by that class) with as little reason, as even the taste can discover. *Ex. gr.* Isatis, symphytum, sanguis draconis, santalum rubrum, anchusa, capparis, rubia tinctorum, gummi arabicum, &c. and experience confirms it.

Nevertheless it must be owned, 1. That some, though not very many, powerful remedies are almost insipid, as antimony, mercury, scammony, &c. 2. That some poisons are so pleasant to the taste that they might pass for aliments, had not fatal experience discovered their virulency, as baccæ solani lethalis, rad. cicutæ aquaticæ, hyoscyami, doronici, &c. while other wholesome, and even alimentary simples, are commonly when first used very disagreeable, as apium, allium, armoracia, sinapi, &c.—And, 3. That this sense cannot discover the most considerable virtues of some of the most valuable remedies. For instance the taste informs us that the cortex may have the virtues of bitters, but not that it exceeds them all in agues, gangrenes, small-pox, &c.—that absynthium, elaterium, nux vomica, are all excessively bitter, but not that the first is an excellent diaphoretic stomachic, &c. the second a violent cathartic, and the third a virulent narcotic, yet still they may teach us many things.

The taste inform us that pepper heats, nitrum cools, althæa relaxes, tormentilla contracts, parietaria dilutes, symphytum incrassates, and so of many other simples. Now when we meet with two agreeing in taste and smell, which yet have very different virtues given them, may we not conclude there is some mistake, either as to the one or the other? *E. g.* Bursa pastoris and erysimum, lepidium and isatis, santolina and artimesia, petasites and tussilago, bistorta and hydro-lapathum, agnus castus and zedoaria, &c. And if the same virtues be given to simples differing in taste and smell, that there must also be some mistake; as are to abrotanum mas. and a. femina. Vide *Phar. Lond.* Yea if we find a new medicine taste and smell like an old one, may we not presume, if no malignity has been found in it by experience, that their virtues are much the same? *E. g.* Pariera brava and ruscus, ginseng and eryngium, feneka and jalapa; an & lignum campechense & rubia tinctorum? Can we believe camphora cools, when it burns the mouth, &c.

The very learned *Fredericus Hoffmannus, M. P. Halensis*, in his *Opusculorum*, tom. i. *Ulmæ*, 1725, in 8vo. has a *Dissertatio de methodo compendiosa plantarum vires & virtutes in medendo indagandi*, wherein he says, "Nostris temporibus, mirari subit, quod hætenus perquam pauci eruditorum, satis diligenter cogitaverint de inveniendâ methodo, qua specificæ & salutiferæ vires cujusvis plantæ facile indagari possint. Et licet nonnulli, hoc in labore, non sine laude desudaverint, dum partim ex ipsis characteribus, partim ex sapore & odore, hanc virium cognitionem petendam esse affirmarunt; tamen paulo curatiori studio, non solum hanc viam fusius persequi, sed & novam quandam methodum, virtutes herbarum dijudicandi proponere instituinus." And with relation to the characters he says, "Asserimus plantas quæ similes gerunt characteres, viribus inter se multum & sæpius convenire." Then he conjoins in *charactere & viribus*, all the fungi, boleti, agarici; all the musci,



musci, lichenes, equisetæ, osmundæ, lunaria: *Item*, pulmonaria, lithospermum, cynoglossa, buglossa, symphyta, &c. *Item*, parietaria, blitum, chenopodium, mercurialis, spinacia: *Item*, all the labiata, umbellifera, eliacæ, flosculosæ, semiflosculosæ, & coniferæ. Here I see neither agreement in characters, nor in virtues. Could Hoffman blunder thus? *Quid dicendum de aliis inferioris notæ.*

In order to discover the virtues of plants he lays down a dozen of *leges* or *regulæ*. "Secundum quas ex sapore & odore de viribus plantarum certum fieri possit judicium." The first is, "Omnes plantæ amaræ, propter sal, quod in se reconditum habent, alcalino-fixum terreum, cum sulphure fixiori mixtum, virtute gaudent, aperiente, incidente, obstructions & infarctus viscerum expediente, dum acidum, & viscidum extinguunt, omnisque generis excretiones leniori stimulo adjuvant; hinc alvum servant apertam, & perspirationem faciliorem reddunt; itaque ideo in cachexia, scorbuto, hydrope, ictero, mensium suppressione, affectu hypochondriaco, quartana, aliisque febribus intermittentibus, stomachi vitiis, cruditate acida, appetitu extincto, & alvo adstrictiori, opem ferunt plane egregiam. Hujus generis sunt absinthium, carduus marie, scordium, fumaria, tanacetum, rhabarbarum, extractum colocynthidis," and nine more. Has any of them a claim to the virtues in the rule or the principles? Do all bitters agree in either? In a word, his rules are arbitrary, and his simples ill conjoined, since they differ widely in their virtues, as well as salts, sulphurs or chemical principles. On the other hand,

*Julius Pontedera* in *Dissert.* iv. p. 70, rejects this method altogether. I shall give a sample of his reasoning also. "Sunt plantæ," says he, "quarum succi nobis amarissimi, ad alvum dejectiendam aptissimi, ut colocynthidis, bryonia, gentianæ, chamæmeli, asari, & aliæ. Num propterea omnes, quæ eodem sensu nos afficiunt cathartici erunt? Amarissima enim, elatine, pilosella, tormentilla, quæ tamen alvum cohibent, & feminarum profuvium sistunt. Amarissimo quoque sapore præditæ valeriana sylvestris, & pulegium, quæ neque ad alvum vel movendam, vel compefcendam faciunt, verum catameniis subducendis inserviunt." He says, foliæ tithymali are styptic, but neither bitter nor acrid: "Verum nihil vehementius acrioribusque torminibus purgat. Contra sophia chirurgorum gustatu acerrima, spissandi cohibendique naturam habet:" and so on. And concludes, "Non esse hanc rationem satis ad aliquid de plantarum virtutibus determinandum." I shall only add, that he has not tasted the plants, at least all he mentions, or else his taste and mine differs very widely; to pass what he says of their virtues.—Upon the whole, any one who has carefully tasted but a few simples, cannot but observe, that these and many other authors have not made that use of their senses, which they ought; nor considered the differences, degrees, durations, subjects, nor combinations of them; though few, if any plants give one simple taste: our senses discover therein many, two, three or four simple tastes. When therefore they pretend that because a plant is bitter, it must act so or so; of necessity, they must lead into numberless mistakes: there being bitter plants as different in virtues, as food and poison can be. And thus *Linnæus* *Fund. Bot.* §. 358—363, as well as the other two above mentioned professors, grossly blunders, in directing how to discover the virtues of plants

by their taste and smell. To make this more plainly appear, and to direct how you may to much greater advantage employ your senses in discovering the *vires plantarum* chiefly; and also to shew how much the manner of medicines acting on us may be illustrated by them, I shall subjoin here what may be called,

### A Digression concerning the DIFFERENCES of TASTES.

Theophrastus, who perhaps has said as much on tastes as any author before Grew, in his books *De Causis Plantarum*, reckons eight kinds of tastes. "Saporum genera numero complecti facile est, quippe, dulcis, pinguis, austerus, acerbus, acris, salsus, amarus, acidus. Sed naturam explicare cujusque difficile." *De Causis*, l. 6. c. 1. *Vide etiam* c. 2—29. or to the end of that book, viz. a p. 352, ad p. 388. to which some added insipidus, as a ninth, hence *Schol. Salernitan.*

Hic fervore vigent salsus, amarus, acutus:  
Alget acetosus, sic stipans, ponticus, (austerus) atque  
Unctus et insipidus dulcis dant temperamentum.

Vid. *Schol. Salern.* cap. 6. p. 128. compiled about the year 1100. "Novem saporum differentiae sunt, nec plures gustus notavit." *Fernel. Therap.* l. 4. c. 3. obiit in 1558. But the learned Dr. Nehemiah Grew has treated this subject incomparably better than any author either before or since him, in his discourse of the diversities and causes of tastes chiefly in plants, read before the Royal Society, 25th of March 1675, and printed along with his *Anatomy of Plants*, &c. Lond. 1682. in fol. of which Mr. Ray, in *Hist. Pl.* p. 46—50. has given the substance, and I shall subjoin an epitome. According to him,

Tastes differ, 1. Specie, being either simple or compound. 2. Gradu, intense or remiss. 3. Duratione, of short or long continuance. 4. Motu, quick or slow. And, 5. Respectu subjecti, fixed or moveable. Now, in order to observe these diversities, hard bodies ought first to be powdered, one simple only tasted at one time, and the mouth well washed and freed of the sensation before a second be tasted. And I have found it of great use also to make an infusion of each, whether hard or soft, on account of the taste as well as of other experiments, by pouring boiling water on them, and suffering them to macerate for a day or longer. How to measure the duration of the sensation is commonly known.

1. The species of tastes are either simple or compound. Simple tastes are, 1. Amarus, or bitter, as absynthii. 2. Dulcis, or sweet, as sacchari. 3. Acidus, or sour, as aceti. 4. Salsus, or salt. 5. Calidus, or hot, as caryophyllorum. 6. Frigidus, or cold, as nitri. 7. Aromaticus, or spicy and fragrant, as cinnamomi, or rather occimi. Euphorbium is hot, but not aromatic. 8. Nauseosus, or malignant, at rhabarbari, fennæ. 9. Vapidus, vapid, as amyli, aquæ, boli. 10. Unctuosus, oily, as olei, adipis. 11. Penetrans, penetrating, not pungent, as cucumis sylvestris. 12. Stupefaciens, benumbing, as if scalded, as hellebori nigri. 13. Astringens, styptic, as gallarum.



14. Pungens, pricking, as spiritus falis ammoniaci. 15. Intermittens, intermitting, as radicis diacontii. and 16. Tremulus, or vibratory, as pyrethri, the heat whereof is not still, but vibrates as it were : in ginger it is not so.

Compound tastes, consisting of two, three, four, or more simple tastes, are much more numerous ; but we have names for six only, viz. (α) Acerbus, astringent and acid, as unripe grapes. (β) Auflerus, astringent and bitter, as green grape-stones. (γ) Acris, pungent and hot, as horseradish, (he gives no other instance) : Zedoary is hot, not acrid ; so is contrayerva : arum pungent not acrid. (*certe calidissimi saporis mihi videtur*). (δ) Muriaticus, salt and pungent, as common salt. (ε) Lixivus, salt, pungent and hot. (ζ) Nitrosus, salt, pungent and cold.

“ Besides these, says he, there are a great number of conjunctions, for which we have no proper names : for admitting there are but ten simple tastes, amarus, dulcis, acidus, falsus, calidus, frigidus, aromaticus, malignus, vapidus, astringens ; and of these only two be combined in any one body, they produce 45 compound tastes ; but if compounded by threes, they produce 120 variations ; and there are many quadruples : agaric is malignant, astringent, bitter and sweet ; and, perhaps some quintuple and sextuple.”

2. Gradus respectu. Each species of tastes in every conjunction is capable of variation herein, in most species to 5 degrees, and in some to 10. So curcuma is bitter in 1 gradu ; gentiana in 10 ; radix cardui benedicti is hot 1 gradu ; the green pods clematidis peregrinæ in 10. “ Now reckoning every species to be varied by five degrees, these added to the several species of tastes in all their treble conjunctions, come to 1800 sensible and defineable variations.”

3. Respectu durationis et motus. As of diseases so of tastes there are four terms of motion, viz. Principium, augmentum, status, declinatio. (α) Principium is the space of time betwixt the first contact of the body and first perception of the taste. Acids and bitters are presently perceived, or have principium brevissimum ; acrida not so soon ; so the acrimony of the pods clemat peregrin. though in gr. 10. is not so readily tasted as the bitterness of roses, which is in the second degree only.—In hot tastes it is generally longest : so the bitterness rad. hellebor. nigr. of gr. 2, is presently tasted ; but its heat, which is in gr. 3. is not perceived till after two minutes. The bitterness enulæ, of gr. 4, is sooner tasted than the heat, although in the 8th degree.—(β) In the times of their augmentation also the variations are remarkable. The heat galangæ is not only presently perceived, but rises to the height in half a minute ; but the heat enulæ not till after a minute, and hellebori nigri not till after four minutes from the first contact.—(γ) With regard to the status, the heat filiquarum helleborastri comes to the height and begins to decline in half a minute ; rad. cochleariæ not till after a minute ; and. rad. asari not till after two full minutes.—And (δ) as to the declination ; calamus aromaticus is bitter gr. 4, hot 1, and aromatic 3 ; yet the bitter quickly vanishes, the heat continuing two minutes. The pungency jalapæ continues almost 6 ; the heat cochleariæ 7 or 8 ; the bitterness of wild cucumber near 15 ; and the heat euphorbii et hellebori nigri above 30 minutes. “ So that the time of augmentation is seldom extended beyond 4 or 6 minutes ; but that  
“ of

“ of the declination ſometimes to 30, 40, or more.” *N. B.* Mezereon, arum, iridem, tithymalum, &c.

4. *Reſpectu ſubjecti*, or the part or parts where the taſtes are wholly or chiefly perceived : they are either fixed or moveable. (*α*) A fixed taſte is that which keeps within the compaſs of one part all the time of its duration ; as upon the tip or root of the tongue, or other part. A moveable taſte is either (*β*) diffuſive, which by degrees ſpreads into diverſe parts, without leaving that wherein it is firſt perceived : ſo the bitterneſs *rad. helleb. nigri ſiccæ* is firſt felt on the tip of the tongue, whence it ſpreads to the middle of it ; and that of the leaves *cucum. ſylveſtris* ſpreads from the tip to the root of the tongue.—Or (*γ*) tranſitive, which, after ſome time, wholly quits the part where it is firſt perceived, and is transferred to ſome other part ; as the bitterneſs of gentian immediately paſſes from the tip to the middle of the tongue. Moſt of the diffuſive taſtes are alſo tranſitive.

The parts which are the ſeats of taſtes are the lips, tongue, palate, throat, and gullet. (*α*) Upon the lips, *rad. hellebor. albi*, and *pyrethri*, chewed, make a ſenſible impreſſion, which continues like the flame of a coal betwixt in and out for nine or ten minutes ; but the heat remains in other parts much longer. (*β*) On the tip of the tongue taſtes are moſt commonly perceived : on or near the baſis, the taſte *foliorum cucum. ſylveſtris* chiefly fixes itſelf : on the vertex or middle of the tongue, gentian, colocynth, &c. are taſted conſiderably ſtrong, when not at all perceived on any other part. (*γ*) Upon the palate, *rad ſolani lethalis* makes its chief impreſſion, continuing there about four minutes in ſome degree. (*δ*) Upon the throat or uvula, larynx, and parts adjacent, *folia bellidis majoris*, *chelidonii minoris*, *pimpinellæ*. So *mercurialis*, *aſparagus*, *jalapa*, &c. being chewed, make little or no impreſſion on the tongue ; but their juice being ſwallowed cauſes a kind of pricking in the throat, as when one is irritated with a ſharp rheum. And that this taſte is truly different from either the heat, pungency or acrimony upon the tongue is manifeſt, in that though *pyrethrum* is very hot, and *cortex winteranus* very pungent upon the tongue, yet their juices ſwallowed cauſe no heat, pungency, or uneaſy ſenſation in the throat. And (*ε*) laſtly, the œſophagus itſelf may be ſaid to be ſometimes the ſeat of taſte ; as appears by the heat produced in it by the root of common wormwood : for of this it is remarkable, that being firſt perceived on the tip of the tongue, it thence goes to the root of the tongue, and ſo into the throat, and by degrees deſcends into the very gullet, where it ſeems to warm the ſtomach ; and ſo it continues in ſome degree almoſt 15 minutes, though none of the juice be ſwallowed. “ Whence I conjectured firſt, ſays our author, and afterward “ found it confirmed by experience, that this root is an excellent ſtomachic, “ neither unpleaſant or affecting the head as the leaves do. I ſhall conclude “ with one note, adds he, which is this : The ſpecific virtues of medicines, “ which ſome phyſicians poſitively deny, and moſt diſpute, from ſome of the “ forementioned differences of taſte, as well as for other reaſons, may ſeem “ at leaſt to be probable ; for why ſhould a medicine make impreſſion upon “ one part, and not upon another within the body, as well as we find it do “ within the mouth, eſpecially ſince the parts of the mouth are of a leſs dif- “ ferent nature than ſome of the viſcera.” Thus Dr. Grew. He has alſo an



appendix of odours, consisting of some uncommon remarks; as that the roots of rape, and crowfoot fresh cut, smell almost like sp. sal. ammoniac. or scurvygrafs juice. Crown-imperial stinks like a fox. The root of patience digested three weeks in a warm room with water smells like spirit. c. c. of red dock, almost like aqua fortis. Dragon root boiled in water, and set in a cellar about a month, stinks like a foetid ulcer; and, after five months, more abominably than either to be endured or expressed. Rue-leaves corked up in a bottle, and set in a cellar for about ten weeks, smell like spirit. c. c. or urine. Scurvygrafs-juice kept about nine months, with the green sediment, in a warm room, stinks like human excrements: and that scurvygrafs-wine, made of the juice only, smells like some issues.

The diversity of odours is very great also. There are pungent and soft, acid and putrid, acrid and sweet, aromatic and foetid smells, and many degrees and varieties of these, as well as many other kinds of odours, for which we have no names. There is an agreement between the smell and taste in many substances, both senses being affected much the same way at the same time; so that without a quick sense of smelling, there seldom is a good taste. Yet plants may have a very sweet smell, and acrid hot taste, as the flores mezerii; no smell and strong taste, as arum; little taste and aromatic smell, as ocimum, &c. To conclude this digression; from it we see to how little purpose Professors Hoffman and Linnæus, Vid. *Dissertat. de Re Herbaria*, p. 66, vel a p. 63, ad 67, have laboured on this argument, and how useless their rules are, to say no more. As for Mr. George Thompson's translation of Hoffman's *Dissert.* annexed to his *Anatomy*, Lond. 1734, in 8vo. it deserves not to be noticed. To proceed therefore, I say, that

## LECTURE VII.

2. **B**Y chymical principles we are also assisted in discovering the qualities of simples, without destroying them by fire; viz. by various mixtures, digestions, solutions, &c. For instance; since we know the nature of alkalines and acids, volatile and fixed, (for which indeed we are indebted to the fire), by their known properties we can discover whether any simple partakes more of the one than of the other, or is neutral. Thus (*a*) such substances as make an ebullition with fixed or volatile alkalines or absorbent earths, as chalk, &c. or turn the tincture of violets or turnsole red, are acid or ascescent. But (*β*) if they make an ebullition with acids, as sp. aceti, vitrioli, &c. or turn tinct. violarum green, they are alkaline or antacid. (*γ*) If they redden tinct. heliotropii, but not tinct. violarum; and also precipitate a solution sublim. corrosiv. that neither an acid nor an alkali predominates. Many substances redden a solution heliotropii, but not our blue paper. (*δ*) If mixed with sal tartari or quick-lime they give a volatile or urinous smell, they contain a sal ammoniac, or something akin to it, or to animal salts. (*ε*) If they precipitate a solution of sal saturni, they contain common salt. (*ζ*) If they turn black with astringent vegetables, as galls, they contain iron. (*η*) If they give a blue tincture to volatile spirits, there is brass or copper in

in them: (6) If they grow black or purple with a solution of vitriol they are astringent. Vide *Tournef. Hist. Pl. Geof.* vol. i. p. 36.

We know also by such experiments that animal substances of themselves, or assisted by water and heat, dissolve into a jelly, which in time, or soon, putrifies, and grows alkaline and acrid. *N. B.* Gelatina c. c. — That some vegetables also naturally putrify with water; others ferment and sour; some sooner, some later; (which by maceration is daily discovered): that pearl, coral, iron, &c. are antacid: that iron and copper are dissolvable in water: that one poison may destroy another: corrosive, be turned into mild neutral salts by acting on one another: and oil turn the most corrosive lixivium into a mild soap, &c. But,

3. The virtues of several simples may be discovered by their effects when applied to the surface of our bodies, or those of other animals. Some inflame and ulcerate the skin; as cantharides, succus tithymalor. euphorbii, sinapi, raphan. rustican. ranunculi, isati, lepidii, &c. Others are more strongly caustic; as arsenicum, calx-viva, cineres clavellati, ol. cinnamomi, &c. Some are cathartic; as nicotiana, colocynthis, erigerum, &c. others relax: others contract, harden, &c.

And though we cannot with certainty conclude that what poisons a dog will poison a man, yet surely such substances should be cautiously used; as doronicum, faba S. Ignatii, nux vomica, lignum colubrinum, amygdalæ amaræ, &c. We may suspect that which no animal will eat, if we know no more about it. “Et hoc indicium habuerunt Europæi, cum Americæ sylvas oberarent, fructus aliquos edules esse, aut saltem impune gustari posse, si nimis mirum ab avibus decerptos, aut demorsos viderent.” *R. H.* 47. On the other hand I have seen asses, sheep, &c. greedily eat hemlock. In the *Amœnitat. Academ.* vol. ii. p. 225-262, there is a treatise called *Pan Suecus*, wherein is a list of the wild plants, with the animals, (boves, capræ, oves, equi, sues), that eat them, which wants not its use, and takes up from p. 237 to 261, where it is noticed also, that sheep eat hemlock. — Resinæ jalapæ ʒj. has poisoned puppies. Vide *Wepfer. Cicut.* p. 221. “Mercurius sublim. corrosiv. hominibus lethalis, canibus eodem dosi exhibitus, vomitum solummodo excitavit.” *Geoff.* vol. i. p. 39. Sublim. corrosiv. ʒj. killed a dog in an hour’s time. *Freind, Em. c.* 14. A large dose indeed! Injecting into the veins of animals, and even of men, was a very dangerous experiment, yet the learned in Britain were very fond of it for some years, till its bad effects put a stop to it.

4. Not a little of the nature of simples may be discovered by comparing them with one another, especially the unknown or suspected with such as are well known: and that (a) as to the origin, texture, consistence, weight, colour and the like. Thus lapis lazuli and armenus are both mineral, hard, weighty, blue substances, found in copper-mines; hence probably they both partake of copper: but then it must be noticed, that the blue colour which copper yields is not fixed in the fire, neither is that of the lapis armenus: but that of the lapis lazuli is fixed, or this endures to be red hot, without changing the colour; so that its pigment is owing to somewhat else than copper, and perhaps is of the nature of smaltum got from cobalt.

“Lapis



“Lapis lazuli owes its colour to copper, but the quantity it contains is uncertain.” *New Dispensatory*, p. 150. Gold and mercury are the heaviest of bodies, but gold is the most ductile, and mercury the least; which at least in part may account for their different effects. Thus also the spunginess of agaric and colocynth; the viscidness of acanthus and psyllium; the consistence and solubility of coralium and spongia, though of the same class, and yielding the same chymical principles; the original of kermes and cochineal, &c. let us into the knowledge of their natures and manner of acting, wherein they agree and wherein they differ.

Also ( $\beta$ ) as to their taste and smell, botanical character, and every other way, whereby we can discover wherein they agree and wherein they differ. In this sense Mr. Geoffroy's *Regula prima ad vires medicamentorum investigandas*, is of more use than the way he applies it. “Nihil magis confert,” says he, *Mat. Med.* vol. i. p. 44, “ad investigationem principiorum, quibus mixta in corpus humanum agunt, quam observatio analogiæ, quam habent, cum rebus vulgò cognitis. Satius est apud medicos, ad salem ammoniacum, tartarum, alumen, vitriolum, nitrum, oleum essentialia, tum aromaticum, tum scetidum & similia confugere, quam ad acidum & alcali, aut ad ignem, aerem, terram, & aquam, quæ fere nunquam pura e mixtis extrahuntur,” (which is also true of the salts and oils he mentions) “aut ad calidum, frigidum, siccum & humidum, quæ nimis leves sunt mixtorum proprietates, quam ut eorum indolem aperire valeant.” Thus he, and commonly from the analysis, often from taste and smell, and sometimes without the assistance of any of them, he gives his simple an ammoniacal, nitrous, aluminous salt, &c. without being supported even by a probable conjecture. *N. B.* Bursa pastoris. Such comparisons may sometimes illustrate known virtues, but are of little use in the investigation of them, it being easier, *ex. gr.* to discover the astringency of *corpus mixtum*, than to find an aluminous salt in it. Something also of the agreement or disagreement of the nature of simples among themselves, if not also of all their action on us, may be discovered.

( $\gamma$ ) By comparing their action on the human fluids. Some substances coagulate the blood and serum; others dilute and thin them; some alter their colour, others not, &c. Wine dilutes, but spirit of wine coagulates both. Acids, as sp. vitrioli nitri salis, &c. generally coagulate the blood and serum: but sp. aceti dilutes it, as also alkalines fixed and volatile; yet these as well as mineral acids injected into the veins of a dog suddenly kill. Borellus indeed and some others say, that oleum or sp. sulphuris may be injected, to the quantity of ʒj. or ʒij, into the veins of a living dog without hurting him; *sed multum dubito*. All the vitriols, alum, and sal mirabile coagulate; nitrum, borax, sal commune dilute the blood: acids make the bile green, and less bitter: alkalies volatilise animal salts, or raise the urinous spirit. For experiments of this kind, see *Freind's Emmen.* c. xiv. *Boerb. Chem.* vol. 2. *Proces.* 127. & *alibi*, and *Geoff. Mat. Med.* vol. i. p. 32. Though the last I cannot warrant; particularly what he relates, concerning the different effects of some liquids on the arterial and on the venal blood, coagulating the one, and dissolving the other. “Compertum est,” says he, l. c. “a quibusdam liquoribus, sanguinem venosum coagulari, quibus arteriosus funditur, & vice versa.” But poisonous and

and safe remedies, may and do act the same way on the blood, at least apparently, as solanum lethale, black hellebore, and absinthium. *Geoff.*

As for Prof. *Hessman's Via nova & minus cognita, a fundi & soli, quibus plantæ gaudent, natura & indole, &c.* it is so full of blunders, that it had been as well if it had never been heard of. *Ex. gr.* He says, "Taxus, abies, pinus, &c. ab omni cultura abhorrent. Apium palustre est ingentis acrimoniæ. Ranunculi pratenses & montani sunt fere acrimoniæ expertes. Lac, butyrum, caseus, mel præstantiora sunt in locis montosis & frigidioribus, quam in humilioribus. Sale subtiliori caustico virulento instructa sunt bryonæ, equisetum, fenna, zingiber, eupatorium, apium palustre, aloë & paludosa. Orizæ, nymphææ, tribuli aquatici radices sunt sapore valde acri præditæ." Among his *montanæ salubres* are doricum, eupatorium, abrotanum, alchemilla, pulmonaria, scorzonera, polygala. And among those *quas terra pinguis stercorata profert, & quæ anodyne sunt*, are anisum, anagallis, buglossum, ceresolium, crocus, lupulus, levisticum, saponaria, valeriana. *Pudet, &c.!* "Locus siccus sapidiores, succulentus insipidas magis, aquosus sæpius corrosivas reddit. Aquaticæ acres & corrosivæ; ut nymphæa, sium, persicaria, sesymbrium, &c." *Lin. Phil. Bot.* p. 283. which to repeat suffices to refute. The same may be said of the *colores*. Vide *Dissert. de re Herbar.* p. 109. Though by one or other of the four methods mentioned the far greatest part of the errors concerning the Materia Medica may be corrected, and the virtues of new medicines investigated; yet still experience must be the ultimate judge; and whatever effects of simples are sufficiently confirmed by experience, must not be rejected as imaginary, though we cannot well account for them. But, what experience? We cannot make experiment of every simple upon ourselves; and experience is often appeal'd to for very different, yea inconsistent and contrary, effects of the simple; for instance of kermes. Wherefore,

5. In order to make a right judgment of such virtues as can be known only by experience, we must examine facts and testimonies, as good historians and critics do. That is, we must consider the possibility and probability of the relations, together with the ability and integrity of the relators, and compare testimonies with one another: thus the truth will without difficulty be found out; vide *Schelham. Add. in Conring.* vol. v. p. 35; for if the relation be improbable and inconsistent with the known properties of the medicine; or the relators ignorant, dishonest or designing, no regard is due to their testimony, even though they pretend to be eye-witnesses. I cannot say with *Schelhammer*, l. c. that "quæ publico testimonio perhibentur, sunt omnium certissima." *N. B. Renton, Stephens, &c. Mercury, &c.*

We have therefore little reason to believe, 1. Quacks and empirics, as both designing, and ignorant of the nature of diseases: they may pretend, *ex. gr.* to have cured the stone, with the lapis judæicus, or egg-shells, and fractures with osteocolla, in a few days, where there neither was a calculus, nor fracture, or where no such cure was performed. Nor, 2. Any such as are ignorant of the Materia Medica, because they may mistake the remedy, and attribute the effect of one medicine to a very different one. Neither, 3. Pretenders to specific arcana or nostrums; for money appears to be their sole aim: and since avarice and integrity seldom meet in one breast, the honesty of such, is much to be suspected. Nor, 4. Such as are fond of any particular mere hypothesis,

and



and slavishly addicted to any theory, whether with relation to the cause of diseases, or to the operation of medicines; for it is too common for them to represent things so as best suits their favourite notions and prejudiced opinions. Vanity as well as gain too often gets the better of truth and integrity. Thus some strenuously maintain that opium is cold in the fourth degree; others that it is hot, yea caustic; some that it is an alkali, others an acid; some that it rarifies the blood, others that it coagulates it; some think that its virtues are lodged in its sulphureous, and others in its gummy parts, &c. each accounting for its effects from his own opinions in their own way, though none of them are founded on experience, and easily confuted. Vide *Med. Eff.* vol. v. art. 12. Which a later author seems never to have read; whose performance, I have not yet had time to peruse: only once lightly looking into it in a bookseller's shop, I observed that the author pretends to account for its use and effects, from its soporiferous virtue, although it is easily made appear, that its soporiferous quality is merely accidental, and that it is anodyne and narcotic, can ease pain, stop fluxes, and kill too without causing sleep, till the patient sleep the sleep of death. And lastly we have cause to suspect the virtues transcribed from the ancients, only for the reasons formerly given. But then

A medicine long approv'd is not to be rejected altogether, because in some circumstances it does hurt: for the bad effects of any simple misapplied more convincingly illustrate its real virtues, than a great many cures attributed to it possibly can do. Let absynthium vulgare be an instance. Nevertheless, how long soever used, and much commended, some simples may be, as specifics in certain diseases, if on comparing these virtues with their manifest and well known qualities, we have reason to suspect them, we ought not to lay the stress of the cure on them, though we need not scruple to use them, so be that we are sure they can do no harm. *Ex. gr.* Cinnabaris, viscus-quercinus, ungulæ alcis, &c. in the epilepsy. But if on the other hand we have reason to think them hurtful, or that they will increase the disease, it would be dishonest to prescribe them: for instance, agnus castus or camphora, ad libidinem reprimendam.

By specific remedies are commonly understood such as cure distempers, by acting on their immediate cause, or on the part affected; or on a certain humor only, without otherwise affecting the constitution. That a simple may act more, at least, on one part than on another cannot well be denied. Vide the above *Digression*, p. 33: And the action of cantharides confirms it. But that the oleum scorpionum or viperarum, antimonium ceratum, cortex peruvianus, &c. are such specifics, may be doubted. Of cathartics afterwards.

The virtues however of simples explicable by their manifest properties may be called their common virtues: but when we know only that they cure certain diseases, but not how, such qualities may be called specific virtues. Thus the virtues which other bitters and aromatics partake of, as well as the cortex, may be called its common virtues: but its curing agues, when bitters fail, seems to deserve another name, and may be called its specific virtues, even though it should appear to act only like an innocent epithem in the bowels.

It is scarcely worth while to enquire, whether there is such a thing as a panacea. Vide *Boerb. Inst.* §. 1180. It appears not to be possible, in our present state,

by human means. Paracelsus and Helmont, who pretended to the knowledge of such, used other means, and, notwithstanding their pretences, died. But what say you of his Right Reverend Lordship's tar-water? 'since it is "cardiac, stomachic, diuretic, antihysterical, diaphoretic, balsamic, refrigerant, deobstruent, emollient, restringent, and almost every thing else, which either antient or modern pharmacy has ever invented a name for." *Cure of epid. mad.* p. 49. Does it not bid fair for being an universal remedy? I own it has almost an equal claim to all these qualities with common water, being only the sooty washings of that rosin, which nowise impair its balsamic virtues by making a separation, but rather improve them. People accustomed to high feeding and strong liquors, by changing their diet and drinking water, have often recruited a shattered constitution: but for my part, I would prefer pure clean water to foul or sooty water. It is particularly recommended for the asthma: I know two men, who obstinately continued the use of it for a considerable time, without any benefit, till growing sensibly worse, they were obliged to give it over. Vid. *The cure for the epidemical madness of drinking tar-water.* By T. R. (Thomas Reeve) M. D. London, 1744. 8vo. of 66 pages. "Your Lordship's genius, says he, p. 2. is too sublime to stoop to useful and common virtues; it was always too comprehensive to be satisfied with such inadequate objects; it ever delighted in the wonderful and stupendous. Thus in your younger days, my Lord, you made the surprising discovery of the unreality of matter; and now in your riper age have undertaken to prove the reality of an universal remedy. As none but your Lordship's penetration could ever have made the former discovery, so none but you, my Lord, should ever have presumed to teach the latter. An attempt to talk men out of their reason did of right belong to that author, who had first tried to persuade them out of their senses." Thus Reeve. "Remedia maxime universalia nota hactenus, sunt aqua, ignis, argentum vivum, opium. Ex his quidem plurimum usurpatis, sed cautissime absconditis, nomen sibi maximum comparaverunt, qui medicinam universam possidisse vulgo creduntur." *B. Inst.* § 1182, 1183.

## LECTURE VIII.

### OF CLASSING SIMPLES *secundum Vires.*

I HAVE attempted, as many others have done, to reduce the simples into classes, according to their virtues, or according to the most general indications of cure that they seem to answer. Which being almost an epitome of the Materia Medica, must not only be useful to students, but also a help to the memory of the most experienced physicians. For as a physician ought not to think himself sufficiently qualified for practice, till he is well provided with remedies to answer the various indications that may occur to him; so it is a very happy memory which can retain all those without the assistance of such a *vade mecum* as this to help it. It is not enough to mind one or two medicines, or even all such as are at present in common use in each class:



*ex. gr.* of the stimulantia aromatica; for though the indication of cure may be the same in different persons, yet their constitutions and circumstances may vary, as do also aromatics among themselves. And it often happens, even in the same patient, and where the indication continues the same, that any one remedy long continued will become nauseous, and not answer the intention; which a prudent variation of the simples, answering still the same indication, may easily prevent. All therefore that is incumbent on me, on this article, is somewhat more fully to explain the classes, or the indications of cure, to which the lists of simples are annexed in the printed *Index medicamentorum simplicium triplex*, *Edinburgi*, 1752. Prefixed to the *index virium* of that work is a beautiful passage out of Hippocrates, with a short scheme of the methods I follow in explaining the indications, which is more convenient for readily consulting them, than the alphabetical order in which the lists stand. For in general,

The body consisting of solids and fluids, either of these separately, or both together, may be preternaturally affected. ( $\alpha$ ) The solids may be too lax or too rigid, defective or redundant. ( $\beta$ ) The fluids may offend in quantity, through defect, or through excess, as in a plethora or cacochymia: or in quality, becoming too thick or too thin, too crude or too acrid. There may be acrimonia putrida (alcalina), acida, muriatica, rancida, scorbutica, purulenta. ( $\gamma$ ) Both solids and fluids may jointly suffer by obstructions, inflammations, tumors varii generis; also through default of some particular part, or through the application of noxious substances. All which require or indicate the removal or correction of what is hurtful or morbid by its contrary.—To be more particular,

1. The solids, viz. the fibræ, vasa, viscera, may be either too lax and weak, or too rigid and elastic. If too lax or too weak, they ought to be strengthened, that is, indicate the use of corroborantia. But how are they to be strengthened? Chiefly by proper diet and exercise, (*quæ non hujus loci sunt*), assisted by astringentia et stimulantia aromatica precipue, et amara, which commonly prove diaphoretica. Also,

ASTRINGENTIA, or INCRASSANTIA STYPTICA, by contracting, and bringing to a closer contact the constituent parts of the fibres and vessels, increase their force, by expressing the more watery relaxing parts, and compacting the more viscous, fibrous or globular parts of the fluids, and not by coagulating the blood: for although many astringents injected into the veins of an animal, or mixed with new-drawn blood, or its serum, do actually coagulate them; yet large quantities of such styptics may be safely taken into the stomach. They must therefore either be much altered before they enter the lacteals, or their stypticity be precipitated in the intestines: which last is more than probable; for ( $\alpha$ ) they must considerably contract the absorbents and mouths of the lacteals; and ( $\beta$ ) there is evidently a precipitation visible in the fæces after taking some of them. Claret-wine, which owes its astringency as well as colour chiefly to the skins of the grapes, leaves its colour in the guts; and why not its roughness too? Chalybeates dye the inner coat of the primæ viæ, as well as fæces, black; but neither the lacteals, nor chyle, are in the least tinged by them. Hence astringents act principally on the stomach and intestines. Vid. *Ferrum* infra.

STIMULANTIA by irritating more or less, or even tickling agreeably the sensible fibres, or sentient principle, augment their contractile force. “ Stimulantia sunt medicamenta quæ motus oscillatorios fibrarum motricium vasorum augent, tum motu magno, tum frequenti, hos accelerando; unde per vasorum crebriores et majores contractiones, liquida intus contenta velocius propelluntur. *Blanc Lex.* p. 615. Now as stimulantia act primarily on the nerves, and so affect the sensorium commune, their secondary effects must differ, not only according to the degree of the irritation, but also according to the sensation it excites, and function of the part acted upon. Vid. *Digression on testes*. Hence the virtues not only of alteratives, but of cathartics also, may depend chiefly on their stimuli on the solids. Vid. Dr. *Whytt, on the involuntary motions of animals*, Ed. 1751. in 8vo. For as the same stimulus has different effects on one part from what it has on another, so there are various stimulantia, as acida, acria, amara, aromatica, salina, &c. and many varieties of each; but the aromatica and amara are more properly here roborantia.

If the fibres, &c. are too rigid and elastic LAXANTIA are indicated. Laxant humectantia, farinosa, oleosa, antacria: so do vegetable and watery diet, with rest and ease. Venesection and anodyna notably also relax. Of anodyna afterwards. So much for the solids considered separately.

2. The fluids may be preternatural either in quantity or quality. 1. In quantity: there may be a defect of the natural juices, *i. e.* less than is sufficient to maintain the equilibrium with the solids, which is necessary to perfect health. The indication here is to give proper nourishment, which requires a right regimen of the nonnaturalia, viz. of the aer, cibus et potus, motus et quies, animi affectus, retentia et excreta, somnus et vigiliæ. Vid. *Boer. Inst.* § 744, &c. Or there may be a redundancy of natural and wholesome juices, as well as of fœculent humors.

If there is no degeneracy of the fluids, but only a simple plethora, venesection, abstinence and exercise soon remove it: otherwise evacuantia are indicated. And as there are natural excretions, as by the nose, mouth, skin, uterus, bladder, anus, so there are artificial EVACUANTIA, viz. Errhina, sialagoga, diaphoretica, emetica, cathartica, diuretica, menagoga.

(α) ERRHINA, by tickling or irritating the olfactory nerves, and membrana pituitaria, increase the excretion of the mucus narium. They are called also apophlegmatica, and (barbare) caput-purgia. If they provoke sneezing, they are named ptarmica. The effects of errhines are not, however, proportional to their sensible irritation. Some irritate strongly, as marum syriacum, &c. but the impression is soon over: others, as asarum, &c. are not so pungent, but penetrate deeper, and have more lasting and more remarkable effects. This is observable in cathartics also.

(β) SIALAGOGA, SALIVANTIA, or APOPHLEGMATISMATA, provoke the saliva; which may be done by chewing almost any thing, whether mild, as cera, mastiche, &c. or acrid, as staphis-agria, &c. but more plentifully by the latter. It is promoted by emetics, *refræcta dosi exhibita*, so as to cause only nausææ; but most effectually by mercurials, so altering the juices as to fit them for going off by the salivary glands, which now only goes by the name of salivation.



(*γ*) **DIAPHORETICA**, or **SUDORIFICA**, provoke perspiration or sweat, by (*a*) accelerating the circulation, or increasing motion; or (*b*) attenuating the blood; or (*c*) relaxing the perspiratory passages; or (*d*) diminishing other evacuations. Motion, heat, friction, fomentation and bathing, promote perspiration or sweat, according to the regimen used with them. Internal diaphoretica are warm, diluent and stimulating liquors; especially when assisted by opiates, which are the most efficacious diaphoretica; next to which the acria, aromatica, and volatilia take place.

(*δ*) **EMETICA**, or **VOMITORIA**, act by irritation, at least chiefly so; for vomiting may be provoked by a feather, excess in eating or drinking, unusual motion, loathsome sights, smells, speeches, thoughts, &c. Yet vomits differ from one another as errhines do; ipecacuanha from helleborus, as marum from asarum. Antimonials may reach what ipecacuanha cannot; and white hellebore what antimonials cannot.

## LECTURE IX.

(*ε*) **CATHARTICA**, or **PURGANTIA**, evacuate either (*a*) by lubricating the intestines, and thinning or diluting the fæces; or (*b*) by acting on, or by some means altering, the blood and humors, jointly or separately; or (*c*) by stimulating the stomach and intestines and other viscera. And in one or more of these ways every cathartic seems to operate. Some emetics, as well as purgatives, operate as soon, even externally applied, as they also do when injected into the veins of animals.

As some substances chewed irritate the throat more than any other part of the mouth, so the stimulus or action of emetics appears to begin on or near the pylorus, causing there first a contraction of the muscular fibres, which by the inversion of the natural peristaltic motion, (the necessary consequence of the nausea and sickness), is continued upwards, whereby the stomach squeezes its contents towards the œsophagus, which acting at the same time throws them out at the mouth; and sometimes this happens without sickness, and with little effect. That the stomach can thus evacuate itself, at least in part, appears by the manner in which some persons throw up their food, as well as by Wepfer's observation on dogs, after the diaphragm was wounded. Vid. *C. de cicuta*. But commonly through the violence of the irritation and nausea, the muscles of the diaphragm and of the abdomen, by consent of the nerves, are spasmodically contracted, compress the stomach, and force it to empty itself with greater violence. But the stimulus of purgatives beginning to act on or near the left orifice of the stomach, and only accelerating the natural motion of the primæ viæ, carries the contents with an increased velocity downwards, increasing at the same time both their fluidity and quantity. But if by reason of sickness, or a natural aversion, a great nausea be excited, even the mildest purgative may provoke vomiting, as rhubarb sometimes does.

We had a very learned essay in confirmation of the ancient doctrine of the specific operation of purgatives, by Dr. G. Martyn, Lond. 1740, in 8vo. I shall.

shall not enter into the controversy, but only observe, that there is nothing impossible, yea nor improbable in the theory; though I don't see that it can be of any use at this day in practice: for granting what Hippocrates says be true, viz. "Si homini alicui medicamentum dederis quod pituitam ducit, pituitam tibi vomet;" and so of bilis flava et atra: yet it does not in his writings appear what are the medicamenta which thus specifically evacuate. And besides he adds, "Cum quis pharmacum biberit, quod bilem ducit, primum bilem vomet, deinde pituitam, postea per vim etiam atram bilem, postremam moribundus etiam sanguinem purum vomet. Eadem perpetuantur a medicamentis pituitam ducentibus; primum enim pituitam vomit, deinde bilem flavum, postea atram, morientes autem sanguinem purum, et in hoc mox vitam finiunt.—Quæcunque bilem ducunt, primum meracissimum bilem purgant, postea vero mixtam.—Et rursus pituitæ pharmacum,—porro pituita in homine hyeme augetur, frigidissima enim existit,—si eidem homini idem pharmacum quater in anno dare velis, vomet tibi hyeme quidem pituitosissima, vere autem humidissima, æstate biliosissima, autumno nigerrima." *Hippoc. De natura humana, Lindenii*, vol. i. p. 268. § 8. ad p. 279. § 17. videatur. Hence the good old man appears evidently to ascribe this specific evacuation rather to emetics than purgatives here, tho' elsewhere to purgatives also, to specify the medicine by what it first brings up or evacuates; and yet to make the same medicine evacuate one humor in winter, another in spring, a third in summer, and a fourth in autumn, as if the difference of the humors evacuated depended on the seasons. Besides in his works the same medicine is ordered, sometimes as a hydragogue, and sometimes as a phlegmagogue, or cholagogue; and many as et bilem et pituitam trahentia. *Ex. gr.* Colocynthis, grana cnidia, helleborus, &c. aquam, bilem, et pituitam trahunt: Cyclamen, scammonium, scilla, &c. et bilem et pituitam ducunt; and so of others: but whether he reckoned these pharmacum more specifically to evacuate one of these humors than another, does not appear. He also frequently orders, *in general*, a purger of bile, pituit, &c. to be given, without naming the medicines he designs. Perhaps such of his works as directed them are lost.

Again, according to Dioscorides, colocynthis purgat pituitam et bilem; grana cnidia bilem, pituitam, et aquam; helleborus humores varii coloris; cyclamen pituitam et aquam; scammonium bilem et pituitam; scilla viscida. In a word, neither the ancients nor the moderns are agreed as to the specific operation of cathartics; so that I cannot pretend to class them according to the humors they evacuate. But thus a famous author in his day has done it, I mean Christianus Marggravius, in his *Materia Medica Contraria*, Lug. B. 1674 & 81. in 4to. a. p. 10 ad 30. by what rule I know not.

#### CHOLAGOGA, 8.

Cassia, manna, tamarindi, succusque rosarum,  
Scammonium, myrobalani, rhabarbarum, aloë.

#### PHLEG-



## PHLEGMAGOGA, 13.

Carthamus, agaricus, turpeth, mechoaca, jalappa,  
 Emblica, belliricæ, chebulæ, colocinthis, amara,  
 Hermodactylus, euphorbium, opoponax, sagapenum.

## MELANAGOGA, 7.

Sunt Indæ balani, lazuli lapis, armenusque,  
 Senna, polypodium quernum, helleborusque epithemum.

## HYDRAGOGA, 10 præcipua.

Efula, gratiola, atque ireos succus, mechoaca,  
 Post ebuli semen et succus, cortexque elaterium,  
 Soldanella virens, ac gummi gotta, jalappa.

Thus Marggravius.

(ζ) DIURETICA, vel urinam moventia. The quantity of urine may be increased (a) by diluting the blood; (b) by removing whatever obstructs it, as stones in the passages, tumors, &c. (c) by increasing the velocity of the blood, and diminishing other evacuations, chiefly purging and perspiration; (f) by increasing the acrimony of the juices, and at the same time relaxing the urinary canals; to which may be added (g) by specifically stimulating the kidneys, &c. Hence diluentia, resolventia, attenuantia, stimulantia, (acida, ac acria volatilia) & laxantia become diuretic in different cases.

Van Helmont, *De Lithiasi*, c. 5. § 17. has nine kinds of diuretics. “ Quædam, says he, 1. Urinam corrosivo veneno accuunt: ut cantharides. 2. Alia aciditatem provocant, ac relinquunt in lotio, et stranguriam excitant: quales sunt cerevisiæ recentes. 3. Sunt quæ urinam reddunt abstersivam; ut fontes aciduli, vitriolum martis, lapis cancerorum, herbæ diureticæ dictæ: continentque singulæ alcali volatile, vel saltem istud subter digerendum acquirunt. 4. Quædam lotium provocant, stimulantque expultricem, quatenus putrelaginem urinæ generant: cujusmodi sunt raphanus, asparagus, &c. 5. Sunt quoque diuretica, quæ grato odore lotium, renescque reficiunt; ut macis, nux myristica, terebinthina, mastix, juniperus, &c. quasi renes odore consolati, sui memores officii fierent. 6. Sunt dein etiam quæ ex alcali lixivali, sub digestionem, migrant in acridinem, vias urinæ abstergentem, instar saponis excretricem stimulant, incidunt adnatas sordes: cujusmodi sunt quæ testis et lapidibus, cineribusque appropriatorum colliguntur; quæque sola saxifragorum nomine digna videntur, præcipue si in gradum volatilitatis sunt deducta. 7. Est demum diureticorum genus, quod parva quantitate, lotii copiam e toto corpore profundit; ut millepedes, species de becabunga, item succus conchiliorum marinorum nigrorum oblongorum, et quæcunque nitrum volatile continent, quæque renes torpidos ex proprietate excitant. 8. Est et genus, quod sedandis renum doloribus utile, hæsitantes confortat: qualis est in croco, rhabarbaro, et cassia inversis, i. e. vi solutiva prius orbatis. 9. Spiritus salis marini; nedum diureticus est, simulque

“ stran-

“stranguriam lenit, quibus calculus in vesica volvitur; verum insuper calculos renum minuit, si ultimo igne distilletur turreverberi.” Thus Helmont.

(n) MENAGOGA. Aristolochica et uterina aperientia promote or facilitate the fluxus muliebris, mensium scilicet, vel lochiorum, by attenuating phlegmatic viscid blood, or corroborating the vasa; thus procuring a free circulation: or by specifically stimulating the proper organs, so as to determine that way; taking care at the same time to remove any particular cause of such obstructions. A debility, or inertia solidorum, seems to be more frequently the cause of female obstructions, than a viscosity of the fluids; since some of the strongest astringents, e. g. vitriolum martis and other chalybeates, prove frequently the most powerful aperientia uterina.

Although the fluxus mensium, or catamenia, are commonly attributed to a plethora, yet there are strong objections against it: for it frequently begins before girls come to their full growth, and often regularly returns even when by sickness they are almost quite exhausted. I knew a gentlewoman quite regular after an excessive and long continued vomitus sanguinis, which had reduced her to skin and bone, and so impoverished, as well as exhausted, the blood, that the menses, as well as what she vomited, looked more like lotura carnis, than blood. What kind of plethora was here?—And the moon has nothing to do in this evacuation; for not only does it happen to the same person at all the phases of the moon, but also its period never reaches regularly to a lunation, or  $29\frac{1}{2}$  days, but commonly only to 28 days, or four weeks. *Causa itaque adhuc obscura.* A plethora is a common effect of obstructions, and V. S. proves aperient, or rather deobstruent, on that account.

With regard to quality, the blood; &c. or fluids may be (a) too thick or too thin, (β) too crude or too acrid, (γ) muriatic or rancid, (δ) scorbutic or purulent. To these most of the known vitia fluidorum, qualitatis respectu, may be reduced. But how many other unknown ways they may be preternaturally affected, I pretend not to determine. Vide *Alexipharmaca*.

(a) The fluids may become too thick, either through excess or through defect of motion; that is, the thickness, lentor or viscosity, may be either inflammatory or phlegmatic. If inflammatory, diluentia, resolventia, acescentia, antacria, una cum v. s. et eccoproticis purgantibus: if phlegmatic, attenuantia, detergentia, et stimulantia, precipue aromatica amara et alkalina, ac cathartica, are indicated.

DILUENTIA supply the blood with lymph, and increase its fluidity. The most fluid part of the blood being water, aqua is the only simple diluent. But to promote its more intimate mixture, and consequently more effectually thinning the blood, it is often necessary to join with it such substances as are acescent, and gently resolvent, without increasing motion or a tendency to putrification, as saccharum, mel, fructus acido-dulces, &c.

ANTACRIA, by their softness, viscosity, and mucilage, correct and blunt the acrimony of the fluids, and defend the solids from irritation; consequently diminish attrition, and therefore cool, as also do the laxantia alvi, or eccoprotics.



ATTENUANTIA, vel INCIDENTIA, thin the too thick liquids, diminishing their viscosity or tenaciousness. To attenuate the blood, as distinct from diluting it, must be, either (*a*) to separate any number of red globules, preternaturally cohering; but such cohesion in any particular part would cause an obstruction in the evanescent artery, where probably only one single globule can pass at a time; and, if general, would soon suffocate: or (*b*) to compact the too lax globules, so as by increasing their density to diminish their bulk, that they may more easily pass from the arteries into the veins: or (*c*) to divide the larger globules into the six smaller constituent ones, of whatever order of globules or globulets they be; so as to fit them for circulating thro' an inferior order of vessels, or for being carried off by their proper glands and emunctories, which perhaps mercury only can effectuate; or to increase the proportion of the small to the larger globules, which perhaps abstergentia may accomplish: or (*d*) to diminish the viscosity of the lymph or liquid in which all the orders of the globules swim. In the first case deobstruentia are indicated; in the second stimulantia and roborantia; in the third abstergentia, saponacea, and stimulantia, which sufficiently diluted answer also the fourth intention. Hence attenuantia varia.

With relation to the humors separated from the blood, medicines seem sometimes to act differently on them, from what they do on the blood itself. For acids generally coagulate it, yet they dissolve or attenuate mucus or phlegmatic humors in the primæ viæ, and clean the guts, to say nothing of their effects when so altered as to enter the lacteals, or of their stimulant or antiseptic virtue; while soap rather thickens than thins the saliva. Hence acids are commonly said to incise or cut phlegm. "Attenuantia crasses humores dividunt, vel sola partium tenuitate, ut aromata, &c." *Pievot. M. M. p. 272.*

If the blood be too thin and watery, from laxity and weakness of the fibres, want of exercise or bad diet, besides a right regimen of the nonnaturalia, roborantia and incrassantia are indicated.

( $\beta$ ) If by violent exercise, heat, diet, &c. the fluids become too putrid, alkaline, or volatile, then diluentia, acescentia, acida, antacria, and antiseptica are indicated. But if through debility of the concoctions or vis vitæ, excessive use of acids, luxury and laziness, an acid acrimony or crudity prevail, then absorbentia, antacida, alkalina, stimulantia aromatica, et amara, are the remedies.

( $\gamma$ ) If from too great use of sea-salt, or salted meats, a muriatic acrimony or briny sharpness prevail in the blood or juices, diluentia, resolventia, antacriaque easily remove it: aqua calcis forte sufficit. But considering that this salt is unalterable by the vis vitæ; is not only antiseptic, attenuant, diuretic and laxative, but also that the blood of the most healthy is salt as well as the lachrymæ, a muriatic acrimony seems not often to be the cause of diseases. *Vid. Sal. infra.* But if the oily or sulphureous parts of our fluids be so corrupted by heat, violent exercise, bad diet, infection, &c. as to become rancid or acrid, (call it an acrimonia oleosa, exusta, biliosa, or what you please,) acida, antacria, antiseptica, resorbentia, farinosa and balsamica are indicated. Sometimes a renovation, as it were, of all the liquids by mercurial salivation, or a sudorific diet, as in the lues venerea, is required.

(d) And lastly, if from bad diet, long sea voyages, infection or some other means, a scorbutic diathesis or acrimony offend, as the symptoms are various, so must the indications be. “Crassum est reddendum tenue, “flagnans mobile, cohærens fluidum. Item nimis tenue cogendum; acre “leniendum, in genere in specie. Et in correptione unius semper respicien- “dum ad naturam alterius, unde summæ artis opus tentare hunc morbum “cum successu.” *Boerb. Aph.* §. 1156, &c. But the antiscorbutica (*sic dicta*), are commonly supposed to answer all of them.

This disease is commonly thought to have been unknown to the ancients, and to have made its first appearance in Europe about the year 1486, although others are of opinion, that it is to be found in Hippocrates, and particularly in one of the *Splenis morbi*, lib. de internis affectionibus, ascribed to him. Vide vol. ii. p. 239. §. 34. *Lind. editionis*; where among other symptoms “alius “splenis morbi,” are, “gingivæ male olent, & a dentibus discedunt, & ex “tibiis ulcera erumpunt, velut epinyctides.” Which seems to agree with the stomach and sceleritybe which affected the Roman camp in Frisia on this side the Rhine, and for which the herba britannica was found to be a remedy. Vide *Plin.* lib. xxv. c. iii. p. 629. But what this britannica herba was cannot be certainly determined. Some make it bistorta; others prunella, cochlearia, lapathum, fanicula, &c. Vide *Bod. in Theophrast.* p. 677. *Abr. Muntingius*, in his dissertation *De vera herba britannica*, *Amstel.* 1698, in 4to, endeavours to prove it to be hydrolapathum: but I would prefer the most common dock to it in that disease. We find also in the same book of Hippocrates (or Polybus) a disease called *ἰλεὸς αἱματιτῆς*, ileus or volvulus hæmatites, in which “ex ore male olet a dentibus, & gingivæ abscedunt, & a naribus san- “guis fluit; aliquando etiam ex cruribus ulcera pullulant, & alia senescunt, “alia emergunt, &c.” Symptoms not uncommon in the scurvy. Vide lib. i. p. 256. §. 49.

The scurvy at first was probably owing to sea diet, having shewed itself by some symptoms, such as prodigious swellings of the gums, &c. amongst the crews of the Portuguese, upon their making some discoveries in the East Indies. But afterward it transported itself, I don't know how, and seemed to make its settlement in Denmark, and the adjacent countries of the north, for some time; the name itself being of Danish original.—However G. Fabricius in his antiquities of his own country, Mesnia, makes this distemper of an earlier date, and tells us, “that in the year 1486, this new and unheard-of disease spread itself very much, and not only proved extremely dangerous, but carried contagion with it. The mariners of Saxony, he says, called it Scurbock, which in their language signifies an inflammation. And this indeed was one manner, amongst the rest, in which it at first appeared; and it often terminated in a gangrene. At length towards 1600, it dispersed itself through most parts of Europe, and is now become an epidemical evil.” Thus Dr. *Freind's Hist.* vol. ii. p. 389.

“In Germania trans Rhenum castris a Germanico Cæsare promotis, mari- “timo tractu fons erat aquæ dulcis solus, qua pota inter biennium dentes de- “ciderent, compagesque in genibus solverentur. Stomacacen medici vocabant “& scelerityben ea mala. Reperta auxilio est herba quæ vocatur Britannica, “non nervis modo, & oris malis salutaris, sed contra anginas quoque & fer-  
VOL. I. H “pentes.”



pentēs." Vide *Plin.* lib. xxv. c. iii. p. 629. Where you have his description of it; as *Dioscorides* treats of it, lib. iv. c. ii. p. 246. But what descriptions are they? "Folia habet," says *Pliny*, "oblonga nigra, radicem nigram." And this is all. And *Dioscorides*, "Βρετανική ἢ βερτονική, &c. "Britannica seu bettonica herba est sylvestris, lapathe foliis at nigrioribus ac pilosioribus, gustu adstringentibus; caulem vero promit non ita magnum; radici autem tenui, breviusque nititur." Does this agree with the hydro-lapathum? Potius oxylapatho.

But if there be a purulent diathesis sanguinis, whence hectic consumptions flow, then besides proper diet and exercise, especially riding, such substances are indicated as promote the cleaning and healing the internal ulcers, which are the cause of it, and prevent the further corruption of the liquids; as the vulneraria *dieta*, or aperientia deterfiva ad ulcus pulmonum apertum, — especially the antiseptica balsamica.

The phthisis, tabes, or consumption, is no new disease, and no where more common than in Britain, commonly proceeding from neglected coughs; *Hippocrates* treats of it largely, and mentions even *φυμάτα εν πνευμονι*, tubercles in the lungs. Vide *Præn. Coac.* vol. i. p. 562. N°. 210. *Linden. editionis*; but they suppurated. "Alexander mentions a tubercle in the lungs, which occasions a difficulty of breathing, but is not attended with any expectoration or fever: a distemper taken notice of by *Galen*, and a common species of consumptions among us, especially in scrophulous bodies, and which though slower in its progress than a true phthisis, where a consuming hectic follows upon an ulcer in the lungs, seldom fails to end in a hoarseness and atrophy, and to prove at last as mortal as that." *Freind's Hist.* vol. i. p. 106. A distemper difficultly cured; because not commonly observed, till past remedy. In principio indicari videntur aqua calcis, & sapo balsamicis comixtus.

## LECTURE X.

**T**ERTIO, There are diseases in which both solids and fluids seem equally concerned; at least of which we cannot have a distinct idea, without considering both together, tho' one of them only may be, and commonly is primarily and originally affected; as obstructio, and tumores thence arising, whence myriades malorum. (a) *Obstructio*: A canal or artery, or any tube may be obstructed, and the motion of the liquid in it stopped, by reason of the crassities fluidi or angustia vasis, or want of a sufficient vis propellens. In order therefore to remove an obstruction the canal must be widen'd or relax'd; or the obstructing matter attenuated; or the propelling force increased. Suppose, for illustration sake, one of the ureters obstructed by a stone; if we can either sufficiently relax the vessel or diminish the stone, the urine will carry it along to the bladder, and out of the body if the urethra or neck of the bladder do not interrupt its passage; and still with more ease if we can answer both intentions at the same time: but if neither of these can be done, what remains but to increase the quantity and force of the urine by diuretics and mechanical motion. Hence in obstructions, laxantia, resolventia, attenuantia, absorbentia,

bentia, evacuantia & stimulantia, are indicated as deobstruentia, regard being always had to the nature of the obstructing liquids, whether phlegmatic or inflammatory, acrid or not so, &c. With relation to the gravel, Helmont's advice is not contemptible. *De Lithias.* c. v. §. 15 and 16. p. 33. "Omnis calculus," says he, "vel major est suo uretere, vel minor, vel æqualis. Si minor, opportuna nec metuenda erunt diuretica. Si autem justo major, diuretica erunt plane evanida, ac frustranea. At si æqualis ureteri responderit, præstat eundem ocissime expelli, ne per moram augeatur. Verum tamen, quia transeunte calculo, ureter contractus, præ dolore plerumque crispatur, diuretica in paroxysmo danda cum præcautione. Nimirum propinanda sunt doloris & contracturæ inde natæ inhibitiva. Adeoque tam externa fomenta quam interna, quæ convulsivos illos motus placant, summo opere adhortor & necessaria judico." Thus *Helmont. Lith.* c. v. §. 15. p. 33.

(β) *Tumores*: If the obstruction be not removed the afflux of fresh fluid may distend the canal, compress and shut up the neighbouring ones, till a sensible swelling or tumor appears; which according to the place and nature of the obstructed vessels, their number and use, and the constitution and circumstances of the body, may be of very different kinds. It is sufficient for our purpose to divide them into tumores benignos, where the indication is either to discuss, or to suppurate; and malignos, in which neither can be attempted with safety, and we only palliate the symptoms, and prevent their growing worse, by medicines, or extirpate them surgically.

*DISCUTIENTIA* are laxantia, resolventia, &c. as in obstructio: for to discuss a tumor, evacuations being premised, what can be done besides by relaxing and attenuating fomentations, baths, cataplasms, promoting the solution of the obstructing matter, widening the vessels and opening the pores so that it may either be carried off by perspiration, or filled for circulating with the other fluids, to which by increasing the momentum of the blood mercurialia and stimulantia may very much contribute. But if such attempts do not succeed, and the tumor increases, suppuration is indicated and ought to be forwarded by suppuratives.

*SUPPURANTIA* or *MATURANTIA*, are also laxantia, attenuantia or emollientia, together with emplastica obturantia, seu illinentia and attrahentia. (α) Illinentia, ut olea, resina, farinosa, &c. (β) Attrahentia, which determine from within outward by irritating the part, and are the same with rubefacientia. For thus heat being increased in the tumor, the part relaxed, a flux toward them determined, and the pores shut up to prevent dissipation, the solution of the stagnating matter, together with the obstructed vessels, into laudable pus is promoted. Hence we see wherein discutientia and suppurantia agree, and wherein they differ, though not always well explained.

The abscess being fully ripe and the pus brought as near the surface as conveniently can be, it is to be opened, cleaned, incased, and cicatrised: hence attrahentia caustica, digestiva, deterfiva, sarcotica, exsiccantia, and cicatrizantia are indicated, in their order as need requires. Yet sometimes a simple pulice, *ex. gr.* of milk and bread, with some soft oil or hog's lard, to keep it from drying too soon, if needful, will mature, open, clean, and heal; as in impostumations of the mammæ.



DIGESTIVA or DIGERENTIA, prevent the degenerating of the pus, as well as the corruption of the liquids flowing into the ulcer, and such are the antiseptica balsamica dissolved in the yolk of an egg with some honey; to which if some saponaceous or stimulating aromatic substance, ut *sapo hispanicus*, *aloe*, *myrrha*, &c. be added, it becomes abstergens or deterfivum; but the balsamica without such additions, either per se or dissolved, are called *sarcotica* or *carnem generantia*; to which they contribute, by keeping the parts warm, soft and equally pressed, preventing putrification, preserving the tone of the tender fibres, and defending them from external injuries; which is all that is necessary, the ulcer being clean, to assist nature in making up the lost substance, after which it remains only, by the addition of some styptic mineral, to dry and cicatrize.

As for malignant tumors, *scirrhi* and *carcinomata*, if they cannot with safety be extirpated entirely, they are as much as possible to be kept in a state of rest, or from increasing, but especially from ulcerating,—by defending them from irritation, pain, and whatever may cause a fluxion on the part. Hence proper evacuations and diet, together with narcotic repellentia only, are here indicated and useful.

REPELLENTIA, or REPERCUTIENTIA, drive from the surface inward. Hence evacuantia purgativa inwardly, and astringentia and narcotica, outwardly are repellentia: but astringents as increasing attrition, and consequently heat, are here to be shunned, if *plumbata*, which deserve another name, and act more like narcotica, be excepted.

NARCOTICA are those kinds of anodyna which remove the sense of pain, even though the cause of it remain; whether by inducing a kind of stupor on the part, resolution or insensibility of the fibres, or by making the mind insensible of the irritation.—But however they act it is certain they are the most proper to prevent a fluxion, and the increase of such tumors. Narcotics also frequently procure sleep, and are called hypnotica or soporifera: but on this effect, which is but accidental, their action or virtues by no means depend: for as there are hypnotica, which cannot be called narcotica, as all strong fermented liquors, vinous spirits, aromatic oils, &c. so the narcotics act equally as anodyne and repellent, whether they procure sleep or not: to say nothing of the difference between the sleep procured by narcotics, and by other means: vide *Pref. in Diff. on Quick-lime*, nor of the narcotic quality of leaden medicines, which none call hypnotic. Lastly,

4. There being many diseases from poisons, from weakness, or some defect of particular parts or viscera, &c. physicians have given the name of specific, to a variety of simples, which they either found, or imagined they found by experience to be remedies in such cases. Thus some are called specific alexipharmics, others specific antispasmodics, cephalics, nervines, carminatives, pectorals, cordials, stomachics, hepatics, splenics, antihysterics, nephritics, anthelmintics, &c. how justly I shall not here inquire: but think it not amiss to say something on each of them briefly: therefore,

1. ALEXIPHARMACA or antidotes for poisons: if they deserve the name, they must be either (a) so contrary to one another in nature, that is the antidote to the poison, as to destroy the virulency without hurting the patient. Ol. vitrioli and tartari mixed destroy each others corrosive quality, out of the body: but if either were unfortunately swallowed, it would be too late and to no purpose

to

to give the other.—Or ( $\beta$ ) must defend the parts from the action of the poison: perhaps large quantities of boles, mucilages, oils, &c. taken before the poison, might have some effect.—Or ( $\gamma$ ) they must promote their sudden expulsion; as emetics, which though not alexipharmics, are generally the best remedies: but corrosive poisons are too sudden to be even thus cured, though many others have been.—Or ( $\delta$ ) assist nature in overcoming them; which when not too strong, may be sometimes done, as in some poisonous bites and stings. Cordials and antiseptics, and diaphoretics with opium, are reckoned commonly alexipharmics. But no one remedy can be a general antidote.

2. ANTISPASMODICA: As the causes of spasms and convulsions are various, as irritation, repletion, inanition, &c. so must the remedies be. Hence absorbentia, antacria, anodyna, evacuantia, &c. have proved antispasmodica. Vide *Nervina*.

3. CEPHALICA: Nothing can be more evident than that the head, and every other part, is liable to very opposite distempers; consequently no single remedy can be of use in them all, or a specific, cephalic, stomachic, splenic, &c. yet that some medicines may act more on one part than another, cannot be denied: and it has been believed also that such specifics served as dirigentia, to conduct as it were even general remedies to the parts principally affected, or determine them to act chiefly on the part to which the specific related; that cephalics for instance joined to cathartics, directed them to act more immediately on the head, and produced cephalic cathartics. And if there be nothing in such specifics, which can prevent the operation of the cathartic, or the main intention, I see no reason to condemn this practice, though ridiculed by some.

For not only in many old compositions it is followed, but also in not a few very modern ones: as in the pilulæ aloephanginæ *Mesues*, designed both as a cephalic and as a stomachic purge, there are both cephalics and stomachics in tinctura cephalica purgans, also *Phar. Ed.* p. 52. *edit.* 1744. in the pilulæ stomachicæ, p. 108. are stomachics and cathartics conjoined; and so of many other compositions, in almost every pharmacopœia; and even in the *New London Dispensatory*, *edit.* 1746, we find it countenanced, though condemned by the committee. For instance, in the very name as well as ingredients of the pilulæ cephrasticæ, or deobstruent pills (*Pembert. Disp.* p. 328.) there are cephalics stomachics and uterines, if sal. martis can be so called, or antihysterics, making in all twelve ingredients besides the syrup of roses. If the species aromaticæ, be not designed as stomachic, as nervine or cephalic, and uterine, I do not see what intention, a composition, pil. aromatic. ʒiij. rhabarbari, extracti gentianæ, salis martis  $\bar{a}\bar{a}$  ʒj. salis absynth. ʒss. (which two salts appear to be very injudiciously joined,) vide *New Dispensatory*, p. 470, made into a mass with syr. rosarum solutivus, can answer. Does it deserve the name? Is it not formed on the vague and fanciful principles of dirigentia? Vide *Narrat. of Committee. Pemb.* p. 10, 11, and *Fernelius of the various kinds of Cephalica*, lib. v. c. 17. and 18. p. 260.

4. NERVINA: Although diseases of the nerves, being more obstinate and troublesome than dangerous, are more effectually cured by a right regimen of the non-naturals, than by any specifics: yet nervous paroxysms often call for speedy relief; which acrid, volatile alkaline, aromatic and anodyne remedies commonly



commonly procure. Hence anodyna, antispasmodica, carminativa and menagoga, prove nervine in different circumstances. Vide *Ind. tripl.* p. 138.

5. **CARMINATIVA**, five flatus discutientia. These may be of three kinds: ( $\alpha$ ) such as prevent or resist putrefaction: ( $\beta$ ) such as obstruct fermentation or the acescency of the ingesta; fermentation as well as putrefaction generating air, or rather restoring fixed condensed air, to its natural rarified elastic state: and ( $\gamma$ ) such as remove the irregular contractions of the primæ viæ. Hence antiseptica, antacida, & antispasmodica, especially the stimulantia aromatica, as answering all the intentions, being both antiseptic and antacid, are carminativa: for how much soever of air is either swallowed or generated in the guts, if it be not detained by spasms, it may occasion unseemly ructus and crepitus; but nothing else, no troublesome symptom. But if in hypochonders pent, by spasmodic contractions, it rarifies, distends the part of the guts within the contractions, compresses the neighbouring parts so as sometimes not to get off without a diliquium animi, which removing the spasm makes way for the wind and recovery of the patient at the same time. Whatever therefore takes off the spasms, and restores the tone of the relaxed fibres is carminative.

6. **PECTORALIA** or **BECHICA**: The peculiar diseases to which the lungs are exposed, hoarseness, cough, asthma, commonly proceeding from obstructions in the mucous glands of the aspera arteria, or acrid humors irritating it, or viscid infarctions of that viscus, they require different remedies; as diluentia, antacria, abstergentia, balsamica and purgantia leniora, sometimes also anodyna.

## L E C T U R E X I.

7. **CARDIACA**, or **CORDIALIA**, which chiefly cherish and comfort the heart, or rather stomach, and consequently the spirits. “Quod affectus pauci in cor invadere posse credantur, cardiacæ facultates præcipue sunt noxia omnia, malignaque depellere & cordi robur conferre. Malignitatem depellunt alia frigida, alia calida. Cardiacæ frigida sunt buglossum. Nymphaea, semen oxalidis, succus citri, viola, &c. Calida, carduus benedictus, doronicum, melosphyllum, pentaphyllum, &c. Corroberantia, os e corde cervi, ebur, aurum, hyacinthus, &c.” *Fernel. lib. v. c. 21. p. 265.* Rare cordials for the most part! By cardiacæ I mean the more agreeable stomachics, which cheer and exhilarate almost as wine does, and answer the indicatio vitalis, and hence called analeptica; and generally excite a pleasing sensation. Hence opium is the “remedium cardiacum, unicum plene, quod in rerum natura hætenus est repertum,” in the great Sydenham’s opinion. Vide *Opera ejus. Edit. Lugd. Bat. 1726, in 8vo. p. 185, 186;* and the other most famous cordials partake somewhat of its nature, as crocus, ambragrisia, moschus, nux moschata, olibanum, vinum, &c.

8. **STOMACHICA**. The functions of the stomach expose it to so many inconveniences, that considering our way of living, it is no less than a miracle that it is ever sound, and not some way or other defective; but no wonder that stomachica (dicta) comprehend acida and antacida, astringentia and laxantia, &c. although

although Galen (l. 6. simpl. p. 40. D.) says, "Supra ostensum est, quod  
 " amarum ipsum per se, omnifariam offensum sit stomacho : austerum vero,  
 " aut acerbum aut in summa astringens, stomacho amicum ;" yet bitters and  
 aromatics are now the most usual stomachics. It is also a sort of axiom with  
 some, *Vult acidum stomachus, pulmo dulce, hepatis amarum*. The tinctura stom-  
 achica, *Pb. Lond.* p. 92. is only an agreeable carminative dram. But the  
 tinctura ad stomachios, *Pb. Ed.* p. 60. is a bitter, aromatic and strengthening  
 wine. The *New Dispensatory*, p. 409. makes very free with it, because not  
 very agreeable to the palate ; and adds, "The omission of the seven unne-  
 " cessary articles would render it much more elegant and grateful." His  
 unnecessary articles are acorus, galanga, zedoaria, centaurium, absinthium,  
 fl. chamomeli, and sem. cardui ; so he retains only gentian, orange-peel, and  
 the bark : he says nothing of iron. In Dr. Lewis's translation of the *Edinb.*  
*Dispensatory* on the same tincture he animadverts thus : "This composition  
 " has escaped unaltered through the several editions of the *Pharmacopœia*,  
 " but nevertheless the ingredients are too numerous, and several of them  
 " might be left out, to the real advantage of the medicine ; such are calamus  
 " aromaticus, galangalæ, gentian and bay-berries : some of these render it too  
 " nauseous for the purposes it seems intended." Here he leaves out the gen-  
 tian, which he retains in the *New Dispensatory*, and retains all the (rest of the)  
 seven, there unnecessary articles, except calamus aromaticus, which therefore  
 must render it nauseous, which is not commonly thought of ; ("It is a spicy-  
 " bitterish root, and an agreeable ingredient, both in cephalic and stomachic  
 " compositions." *Quincy Pharm.* p. 77. *Vid. N. D.* p. 101.) or rather the bay-  
 berries ; but they were never in it. What inattention is this in a critic ?  
 What ignorance of the simples ? For I venture to affirm, that there may be  
 made a more efficacious medicine, for the purpose it is intended, out of the  
 unnecessary articles, than he can make of his more elegant and grateful one.  
 Diseases of the stomach are seldom cured with sugar-plumbs, or aromatic  
 drams. *Hæc obiter.*

9. HEPATICA, or medicines destined for diseases proper to the liver.  
 "Hepatica medicamenta sunt quæ olim specificè contra hepatis morbos ap-  
 " plicabantur. Sed quia specifica talia non dantur, illa vox apud veriores me-  
 " dicos plane evanuit." *Blanc. Lexicon.* p. 323. "Cephalica sunt medica-  
 " menta spirituosæ, quæ cerebri morbos sanant." *Ibid.* p. 145. "Stomachica  
 " sunt medicamenta adversus stomachi morbos." *Ibid.* p. 616. See also *Pec-  
 toralia, splenica, nephritica, &c.* and tell me why these words *non plane evanuerunt*  
 also ? Since there are medicamenta which as specifically contribute to the  
 cure of the diseases of the liver, and to assist its functions, as there are for  
 any other viscus ; however, as the peculiar diseases of the liver are various,  
 so are the hepatica ; for if weak roborantia, if obstructed aperientia, or deob-  
 struentia, if the bile be deficient amara, if too acrid antacria, are indicated.  
 They are commonly distributed into calida and frigida.

10. SPLENICA, vel lieni apta medicamenta, are such as are found to con-  
 tribute most to the removal of the obstructions of the spleen, to which it is  
 very liable. The ancients attributed many diseases to the spleen, (*Vid. Hipp.*  
*De Internis Affectionibus*, and speak much of big or overgrown spleens, and  
 even scirrhus spleens, &c. for which they used not only attenuantia, but also



astringentia, yea and often the actual cautery. *Hypochondriaca passio* in men is called the spleen, as the *hysterica passio* in women vapours commonly: and both are thought chiefly to proceed from obstructions in the hypochondriac and chylopoietic viscera, if not from the uterus in the fair sex. The general indications are deobstruentia first, and then roborantia. But on account of the symptoms, cephalica, nervina, and carminativa become hypochondriaca medicamenta, and uterina, hysterica. "Splenica sunt quæ valius attenuando, incidendo et volatilizando, obstructionibus splenis corrigendis conducunt." *Blanc. Lex.* p. 609. "Hysterica sunt medicamenta uteri morbis adversa, ab ὑστερα, uterus." *Ibid.* p. 343. ὑστερον & ὑστερα signifies secundæ, not uterus.

11. NEPHRITICA. "Medicamenta quæ renibus conveniunt, alia quidem ardorem urinæ mitigant, leniuntque acrimoniam, alia abstergunt si quid crassius influxit, alia præclare calefaciunt." *Prævol. M. M.* p. 113. The functio renum, viz. the secretion and excretion urinæ, subjects them to some peculiar diseases. For the urine may be secreted in too small quantity, or obstructed in the small fistulæ laterales, corpora pyramidalia, or papillæ renum; or its entering the ureters hindered by sand or gravel, &c. or it may be too acrid, and fret and pain the passages, or the like. Hence diuretica, deobstruentia, and lithontripica are nephritica; also diluentia, laxantia, antacria pro re nata.—Such substances as relax, lubricate, blunt acrimony, and increase urine, without increasing heat, are commonly the most successful, and always the most safe in nephritic paroxysms.

12. Lastly, ANTHELMINTHICA, medicines which kill or expel worms. *Danielis Clerici, M. D. Historia naturalis et medica Lumbricorum latorum, intra hominem et alia animalia nascentium. Accessit de cæteris quoque hominum vermibus, tum de omnium origine, tum de remediis quibus expelli possunt disquisitio, cum variis figuris. Genev. 1715. in 4to. p. 456.* is a standard book, almost exhausting the subject. Here the medicamenta simplicia adversus lumbricos amount, c. 15. to 416 simples, viz. 18 mineral, 368 vegetable, and 30 animal substances. "Nec ad ullum, says he, morbum profligandum, tot a medicis machinæ, quot adversus pusilla hæc insecta, inventa unquam fuerunt, ex sequente catalogo colligere est." p. 408. And below, "Longam pharmacorum vermes necantium vel fugantium, ex medicorum scriptis desumptorum catalogum dare facile mihi fuit, sed ea omnia certa esse, et experientiæ trutina, ut par est expensa, non ideo spondere velim." p. 420. Among these are indeed some very odd and unaccountable remedies, as ichneumonis pilorum suffitus, lumbrici terreni et intestinorum, secundina mulieris primiparæ, vermiculi spongiæ bedegar, vipera, &c. What Cicero says of philosophers is too applicable to many writers on medicine, viz. "Nihil tam absurde dici potest, quod non dicatur ab aliquo philosophorum." But our learned author here examines not a few of these anthelmintics, approving some, and condemning many; giving also many valuable observations and experiments from Redi, &c. relative to the cure of these vermin. But I am much mistaken, if either here or any where else you can find so efficacious and safe a remedy for the lubrici lati, as the pulvis stanni.

I have said nothing of the *qualitates primariæ* and *temperamenta simplicium*, in explaining which, and of the operations of medicines by them, physicians, till

till of late, employed too much of their time, and to no good purpose, being never founded in the nature of the things themselves, nor of any use in practice. Not that there is no difference between heat and cold, moisture and dryness; but that these qualities should, one or two of them, be in every simple, according as fire, air, water or earth predominated in them, is purely imaginary. Warm water may cool one when hot, and cold water heat him when cold. Medicines heat us as they increase motion, and consequently attrition, by stimulating, not by introducing actual fire into us; for a dead body is as cold, wrapt up in sal. c. c. as in salt petre. As for the effects of heat and cold in different degrees, they are too well known to be insisted on here. The lists of the simples that appear to me best to answer the various indications of cure, you have in the *Index Triplex*, which I need not recommend, but leave to stand or fall as it deserves. There remains only the last thing I proposed to consider in these preliminary lectures, viz. *de studio simplicium*.

### Of the STUDY of SIMPLIES.

I HAVE already explained what is included in the knowledge of simple medicines, which a student should acquire, and am now to lay before you how it may most easily be obtained: in order to which I shall first name and characterise some books, and then direct how to peruse them along with the following lectures. I name,

1. *Samuelis Dale, M. L. Pharmacologia, seu Manuductio ad M. M.* “in qua medicamenta officinalia simplicia, hoc est mineralia, vegetabilia, animalia, eorumque partes in medicinæ officinis usitata, in methodum naturalem digesta succincte et accurate describuntur. Cum notis generum characteristicis, specierum synonymis, differentiis et viribus, &c. Tertia editio, multis emendata et aucta, Lond. 1737. 4to. p. 460.”

The first edition was *Lond.* 1693. in 12mo. of 650 pages, which (as the pref. to supp. informs us) being so well received, as in a few years to have travelled Germany, France, Italy, *et ad viciniam Græciæ usque*, the author published *Pharmacologiæ, seu manuductionis ad M. M. Supplementum, Medicamenta officinalia simplicia, priore libro omissa complectens, &c.* Londini 1705. in 12mo. p. 389. that with the former all the simples used in Europe, or contained in Dioscorides, being included, it might be of more general use. There was a second edition of the *Pharmacologia*, in the same form with the first, at London 1710. This supplement was incorporated in the 4to edition.

In the *Pharmacologia*, edit. 2. there are 91 minerals, 629 vegetables, and 142 animals, without reckoning the different simples got from any one of these, which are sometimes pretty numerous. Thus the simplicia offic. ab humano corpore *vivente* are capilli, ungues, saliva, sordes aurium, sudor, lac, menses, secundina, urina, stercus, semen, sanguis, calculi vesicæ, membrana caput foetus cingens; et a *mortuo*, mumia, cutis, pinguedo, ossa, cranium et cor; that is in all 20. In the *Supplementum* are added, 45 minerals, 512 vegetables, and 117 animals, so as to make 1536 species. Yet in the 4to edit.



are 225 more; so that his species simplicium are 1761, though some which are in the former editions are omitted, as *acer montanum offic.* *Suppl.* p. 308.

Mr. Dale long practised pharmacy and medicine as a licentiate, at Braintree in Essex. He was a learned naturalist, and exquisite botanist in particular. Mr. Ray owns himself much obliged to him in composing his *Historia Plantarum*. Vid. *R. H. præf.* vol. i. edit. 1686, though he was then but about 25 years old. And in *R. H.* vol. iii. edit. 1705, he calls him *Medicus et Pharmacopœus Braintriensis*. He was 78 years old in 1737, when the quarto edition was published.

I recommend him for ( $\alpha$ ) the accuracy of his short descriptions of the officinal simples, when he gives any: ( $\beta$ ) for the synonyma, which are pretty numerous: ( $\gamma$ ) for his criticisms, and conjectures relative to the plants of the antients: and ( $\delta$ ) for his candid quotation of authors, about 120, (a practice too much neglected by others at this day); by which means this book becomes as it were a general index to them: and as he writes himself, “*Synonymis auctorum paginam ubique attexit ut lector solus, quid de re quælibet fusiùs disputatum est nullo negotio invenire posset.*” It contains also a kind of dictionary, explaining a variety of technical terms, instruments, &c. in his *Prolegomena Isagogica*. The great Boerhaave is said to have given, in a college *de methodo studendi*, the following character to the 2d edition of this book: “*Hic habetis, brevissimo stylo, quicquid de simplicium notis viribusque debet exponi.*” But the author thinks more modestly of his own performance: he owns it not to be a general history, which indeed he long designed, and had made considerable progress in; “*cujus pars major jam pridem est confecta, reliquam tamen prorsus absolvendi, spem refecat ætas ingravescens.*” *Præf.* p. 7. but to contain only a short account of the officinal simples to prevent frauds.

No wonder then that here are many things wanting which ought to be known, and many things defective: for the doses and preparations are omitted, as well as many medical names: the virtues are commonly transcribed from *Schroder*, or the ancients, and want much confirmation. Although the number of the species needed not to have been by far so great; yet this would be to its commendation, were it not that the virtues mentioned by *Dioscorides* are frequently attributed to simples on too slight conjectures; and too many nasty substances numbered among officinal simples; some of which never were such, and others, if ever they were, it was to the shame and reproach of those that made them so, who could not deserve the name of physicians, but of the disciples of *Zenocrates*. Vid. *Galen. Simpl.* l. 10. *Argument.* p. 72. B. Such abominanda and detestanda had much better have been left out. A. was in the former editions prefixed only to such species as are indigenous in Britain; but in the third edition it stands before them all, so is useless. Had the author's advanced age permitted, there had been fewer typographical errors, which however are not many. He trusts the *Hist. Plantar.* as Boerhaave's too much; Squire *Dudley* for the history of ambergrise, &c.—yet still it is a useful book. I recommend,

2. *Dictionnaire, ou Traité universelle des Drogues Simples.* Par *Nicolas Lemery*, D. M. *Troisième Edition revue, corrigée, & beaucoup augmentée.* A. Amsterdam, 1716. in 4to. of 590 pages, with 25 plates, each containing 16 figures of species

species therein described. The title-page promises the names, origin, choice, principles, qualities, etymology, and whatever is singular, (*tout ce qu'il y a de particulier*), in animals, vegetables, and minerals. The author does not confine himself to medicine, but takes in every thing that he thought remarkably curious: *e. g.* there is here a long account how stockings may be made, or silk may be prepared of spiders webs. It was first printed at Paris in 1698, without figures. The second edition came out there in 1714 without figures, which was reprinted in 4to at Amsterdam in 1716; at Rotterdam 1727; and revised and enlarged by Bernard Jussieu at Paris in 1733, which must be the best edition. Mr. Lemery was born at Rhon in 1645, and died in 1716, æt. 71. He published also a *Pharmacopée Universelle*, Paris, 1697, in 4to. reprinted there in 1716, and at Amsterdam 1717. A *Cours de Chymie*, in 1675, of which the 10th edition was printed at Paris in 1713, 8vo. and a *Treatise of Antimony* in 1707, in 8vo. also.

I recommend this Dictionary, ( $\alpha$ ) for the descriptions, which are more numerous, more full and particular than Mr. Dale's, who gave only the character generis, and sometimes omitted any description of the officinal parts, without ever attempting a specific one: ( $\beta$ ) for what he has concerning the choice, or notæ bonitatis of simples: and ( $\gamma$ ) for some experiments made by himself, Vid. *Camphora*, or others here related. The virtues are lame; preparations wanting; the principles useless; and etymons diverting; *e. g.* *apurothinum, ex a priv. & πυρ ignis; parceque le soufre est l'element du feu.* Vide *Sulphur*, p. 527.

3. *Traëtatus de Materia Medica, sive de medicamentorum simplicium Historia, virtute, delectu, et usu, Auctore Stephano Francisco Geoffroy, M. D. Parisiensi, &c. Parisiis 1714.* in 3 tom. 8vo. The Tomus primus, after the *Prælogium editoris, Eloge par M. Fontanelle*, and some other papers, taking up 197 pages, contains an *Introduction ad M. M.* in 48 pages; and *Materia Medica, pars 1. De Fossilibus*, in 270. *i. e.* 318 in all, including the introduction. Tom. ii. is *De Vegetabilibus exoticis*, in p. 794. Both these tomes are divided methodically into sections, chapters and articles.

Tome iii. is *De Vegetabilibus indigenis*, in p. 836, *ordine alphabetico*, and comes to melilotus, with which it ends; all the rest of the indigenous vegetables, and the whole animal kingdom being wanting. The editor promises to supply this deficiency; for says he, "Indice rerum locupletissimo tertium tomum claudere statueram: at vero in sat densum volumen jam excrevisset, ac præterea in animo habeam ea quæ a Cl. auctore infecta sunt absolvere modo non recusant humeri, nec iter monstrare dedignetur botanicorum princeps, (the editor, who as I am informed is Mr. Courcillis, means here Bernard Jussieu,) "quo duce in hoc tractatu edendo usus sum, opportuniori loco, ad supplementi calcem, illum indicem appositum iri mihi visum est." *Præloq.* p. 6. In the preceding page he had said, "Curatum est ut auctoris autographum integrum & incorruptum redderetur, paucis quibusdam excerptis, quæ vel addere summo viro D. B. de Jussieu, vel emendare visum est. . . . quæ mea sunt uncinis [ ] includenda curavi." Accordingly there came out a supplement in 1750, I think in 3 vol. 12mo, or small 8vo, in French, which includes only the remaining vegetables, omitting even their analyses as useless; promising to treat of the animal substances afterwards.



Mr. Geoffroy was born in Paris 1672, made member of the R. A. S. in 1699, M. D. in 1704, Prof. Medicinæ, vacant by Mr. Tournefort's death in 1709, when he began to lecture on M. M. and Prof. Chimiæ in 1712. The fatigue of teaching both became too great for his tender constitution; and he at last suffered much by it, and died January 6, 1731. Notwithstanding the great preparations he had made before he began, and the long time he continued to teach, as well as the many advantages he had, being the son of a famous apothecary, and living at Paris where nothing was wanting that could be of use to him, yet he had not time particularly to consider much more than one half of the medicines he designed to write the history of. That the *Materia Medica* is a long study I have found to my experience. What I most esteem in him is ( $\alpha$ ) his *Introductio ad M. M.* ( $\beta$ ) the description so far as they relate to the officinal parts and their choice; and ( $\gamma$ ) the experiments made on not a few, there related. The first to me is the most elaborate of the three; and had he lived to revise them all, they had probably come out more compleat. I am far from thinking that this performance, as it is, deserves half the encomium the editor bestows upon it, p. 2. For,

I think it ( $\alpha$ ) unnecessarily prolix in many places, being filled up with tedious descriptions of the most common simples, transcribed from others without emendation, *e. g.* there are near four pages employed in describing six varieties of brassica and three more on their analyses, virtues, &c. while all that is of any use in this article might be included in one page (I might instance a hundred more;)—Also with long and I fear inaccurate chymical analyses, whether from the registers of the R. A. or his own, he does not distinctly inform us; and not seldom with imaginary ones, as well as imaginary consequences thence deduced. However much the editor may esteem these, the author seems at last to have found the chymical principles, might be the product of the fire: Vide *De Tart.* ii. p. 760. and *De Extracto Lactucæ*; for what he there observes sufficiently demonstrate that many consequences, which he draws from the analysis, are ill founded. *N. B.* Corallium, boli, &c.—And with long quotations from the Arabians, as well as Greeks, and trifling criticisms, even when it cannot be determined what their simples were, in tom. i. and ii. But in the 3d he declares it useless to inquire whether the indigenous plants be the same with those of the same name in use among the ancients; because it is difficult to know whether they are or not; and because the same plant growing in Greece, differs much in virtues from the same species growing in France. His first reason might have saved him much criticism and time; but his second is *gratis dictum*. I might add, his formulæ increase the bulk of the book much more than the value of it.

But ( $\beta$ ) his reasonings are commonly ill founded; and his experiments often ill applied. You have here mechanical accounts of imaginary virtues, vide *lap. judæicus*, *lap. pretiosus*, &c. the nature and causes of diseases explained by imaginary principles, vide *cortex*; and noxious qualities attributed to some innocent simples, vide *rhabarbarum*, &c. as well as incredible effects ascribed to others, vide *betonica*, *hyoscyamus*, &c. And ( $\gamma$ ) justice is frequently not done to the authors, to whom he is most obliged: He copies much out of *Schroder's Pharmacopoeia*, *Ray's History*, *Lemery*, *Tournefort*, &c. without naming them. Nor does he follow his own rules laid down in *Introduct.* cap. v. *de dignoscendis*

*dignoscendis medicamentorum viribus.* I wish we could depend on his experiments; that he had quoted his authors for such as are not his own; and had quoted them fairly when he cites them. *N. B.* Bolus armena, fantalum, &c. And (o<sup>a</sup>) in a word, the design of this learned author seems to be to confirm the virtues commonly attributed to the simples in France, or perhaps by his own father, “*Medicaminum historiam, dilectum, usum & præparationes a patre, in his cognitionibus versatissimo, discebat,*” *Præloq.* p. 3. more than to investigate their real qualities, or correct errors concerning the *Materia Medica*.

As for the *Treatise of the fossile, vegetable and animal substances, made use of in physic, &c.* by the late S. F. Geoffroy, translated from a M. S. copy of the author's lectures read at Paris. By G. Douglas, M. D. London 1736, 8vo, of 386 pages; it is evident that when this copy was taken, Mr. Geoffroy himself had advanced no further than the minerals, in this performance: and how slightly he then passed over all the vegetable and animal simples in his lectures, though very much frequented even by strangers, is not a little surprizing: (“*Anno 1709 designatus a rege ut professorium munus exerceret, hanc artis mendendi partem sibi legendam assumpsit, quæ medicaminibus agit, ac demandata sibi provincia ita functus est, ut nominis celebritas, non apud indigenas tantum sed & apud externos brevi spargeretur, ingensque fieret ad eum undique auditorem concursus, qui Parisios quotannis advolabat, quæcumque de Materia Medica dictitaret, avidè scriptis & auribus excepturi.*” Vide *Præloq.* p. 3, 4.) For in this translation the introduction takes up 42 pages, the minerals 241, vegetables only 87, and animals 16: whereas in the Latin, the author is six times as long on the vegetables, as on the minerals. The first part of fossils has all the articles, that are in the Latin edition, *sed erroribus scatet*, e. g. in borace, and instead of lapilli the translator has used capilli, &c. The second part has not one article that looks like a translation, or has the least affinity with the Latin: only the method is much the same with that tom. ii. though many articles are wanting: *ex. gr.* in the chapter i. of roots, there are 27 in the English, whereas there are 36 in the Latin, and so of others. And of the tom. iii. there is not one article in the English. So that Dr. Douglas gained little honour, by the translation, or the advertisements concerning it, with which the news papers were stuffed for a considerable time.

Monf. Pierre Pomet, druggist to the late French King, published a history of drugs, *Histoire generale des Drogues, &c.* in French, Paris 1694, in folio: which was translated into English, London 1725, in 4to, but sadly mangled; and again somewhat better by Jo. Hill in 1748, in 4to. Mr. Hill soon became a voluminous writer, and not only gave us a *History of the Materia Medica*, in 1751, in 4to, but folios of *Natural History* besides. He appears to be a mere compiler.

Mr. William Lewis, M. B. in his *Practical Chymist*, translation of *Pharmacopoeia Edinburgensis*, and his *New Dispensatory*, publish'd this year (1763.) appears to be pretty well versed in pharmacy and chymistry.—I have had time to observe more mistakes than I expected to find in this author, but want to peruse him more fully before I attempt to characterise this *New Dispensatory*: only, *breviter*, there are several things curious in the introduction, of 32 pages;



also in his account of weights and measures, of 6 pages. I cannot say so much of what follows from page 7 to page 65, too much is transcribed from Quincey. But from page 65 to the end it is more valuable.

*Jo. Fred. Cartheuser Fundamenta M. M. Parisiis 1752, 2 vol. in 12mo, more valuable on account of his quotations, than for what he has of his own, which relate chiefly to the quantity of gummy or resinous extract the simples afford. But we have of late got a translation of a more valuable work, viz.*

*The Chemical Works of Caspar Newman, M. D. Prof. Chem. Berolin. Abridged and methodized by William Lewis, M. B. London 1759, in 4to, 586 pages, besides 54 pages of preface, contents and index.*

As for directions in your study, 1. Write out a distinct description of each simple, as kept in the shops, if either usual or useful, at least of such as you are not well acquainted with, subjoining what you shall find of consequence, relating to its history, or choice. The books abovenamed will assist you in these: even the *New Dispensatory* will commonly suffice, observing wherein the lectures differ from them, with the reasons for this difference.

2. In another section place the names, both medical and such as are used in natural historians. *Dale* will much assist you here; but you should add what you further have in the *Index Med. Simpl. triplex*; many medical names being omitted by Mr. *Dale*. It is also worth your while to inquire into the etymology; which, to save time, I commonly omit, except when something singular in it occurs. \*

3. Let the next section contain the *vires & usus* of each simple; and by way of notes or commentaries on these, whatever shall be advanced to illustrate them, or in confirmation or confutation of received opinions, which must stand or fall on facts or experiments, not on opinions. This is what I think the most valuable part of these lectures, though most overlooked commonly. And, 4. In the last section place the dose and preparations, when necessary; with any thing of use that may occur concerning these; and thus conclude each article.

You may chuse your own method, but this is what I have followed; which you may see exemplified in two pretty large articles opium and calx viva. The authors named, will be a help also in these last two sections. But a little pains will enable you, with the assistance of the *Index Virium*, to note down in few words, a more accurate sum of the virtues of simples than can be extracted from all the books that I have named: which for conveniency may be reduced into an alphabetical order, *ex. gr.* Abies est antiscorbutica, antiseptica, aromatica, attenuans, & diuretica: but because little used, and of the nature of the pinus, it is omitted in these classes. Abrotanum est anthelminticum, antispasmodicum, amarum, aromaticum, cephalicum, diaphoreticum & menagogum: & sic de cæteris. But, 5. Be more careful to take the meaning than the words of the lectures, which I study no more than what is necessary to make myself understood. In particular I would have you carefully mark the citations from authors, and the experiments to be mentioned, that you may consult the one, and repeat the other: Remembering always that the fate of the *Materia Medica* and of medicine must still be the same: as the one is improved, so must the

other be advanced, and *è contra*. If every other part of physic were brought to perfection, if the Materia Medica be neglected it would be much the same to the sick as if physicians were ignorant of all. “*Quia, ægroto saltem, non interest quid morbum faciat, sed quid tollat.*” *Celsus Præf.* p. 10. And surely any other arguments to engage your attention and application are unnecessary. N. B. *Podagra*. I have been of late informed, that not a few who have studied here, are found afterwards to be very defective in pharmacy. But how to make up drugs into the different formulas ought to be learned in the shops: yet I cannot but observe, that such as are well acquainted with the nature of the simples, if not defective in natural sagacity, cannot be at a loss in dispensing nor in prescribing compositions; for on the knowledge of the nature of simples both depend: and that all that study here, are not thus qualified, is none of my fault, not one half of them thinking it worth their while to attend the Materia Medica.



# M A T E R I A M E D I C A.

## P A R T I.

### L E C T U R E XII.

#### O F M I N E R A L S I M P L E S.

##### S E C T. I.

##### O f t h e M E T A L S.

**T**H E R E are not yet known more than six true metals, that is, malleable and fusible minerals, viz. aurum, argentum, plumbum, aes, ferrum, et stannum; though argentum vivum, having been for many ages reckoned of the number, makes them seven. “Ubique una inventa est vena, non procul invenitur alia. Hoc quidem et in omni fere materia, unde metalla Græci videntur dixisse.” Vid. *Plin.* l. 33. c. 6. p. 796.

“Metalla definiuntur fossilia ponderosissima in igne fluentia, in frigore coeuntia, tumque ad incudem malleo explananda, vel ducenda. Quæ huc usque ab omni ævo tantum sex simplicia, aurum, &c.—quibus jam præsci accensuere et argentum vivum.—Mirabile videtur vetustissimos Persarum suis in sacris, constanter appellasse metalla septem in terra, quæ viderant nata, nominibus planetarum, quos cælum ostenderat! Quin et characteribus iisdem astronomi, et astrologi, planetas cœlestes, chemici metalla designaverunt.” *Boerb. Chem.* vol. i. p. 31.

“Metalla si pura sunt, vocantur corpora ponderosissima, in diverso ignis gradu fluida, calore atmospheræ naturale solido, sub malleo in omnes dimensiones extendi potentia, opacissima.” *Cramer. Ars docimast.* i. p. 3. See also *Mus. Worm.* p. 113. *Schroder. Pharm.* p. 367. *Geoff. M. M.* i. p. 270.

##### A U R U M.

##### S E C T. I.

Aurum offic. Sol. Rex metallorum chemicis. Aurum. *Worm.* p. 14. *Dale,* 35. *Geoff.* i. 313. et omnium fere autorum. Gold.—This is the heaviest, most fixt, and most ductile substance known in nature. For,

1. Its

1. Its specific gravity is to that of water as 19640 to 1000 according to some, or as 18750 to 1000 according to others. Vid. *Darvies's Tab. Phil. Transf.* No. 488. Though I have found it not 18 times the weight of water, as a cube of 3iij. gr. ii. lost only gr. ix. when weighed in snow-water, though it had been several times refined with antimony, which, perhaps, cannot destroy all the silver in it. Whether this difference in the weight of gold be real, or owing to its greater fineness, or some inaccuracy in weighing it, I cannot determine. [a]

2. Gold cannot be resolved into more simple substances, or any constituent principles: and it is so fixed, that it never is corrupted, does not rust in air, and cannot be destroyed by common fire. "Auri 5i. bimestri spatio in oculi furni vitrarii fusa ne granum amiserit." *Boer. Chem.* i. p. 34. *Linneus*, indeed, says, "Nihil in tota rerum natura, ne argentum quidem et aurum ignis summi speculo caustico producti, vehementiam eludere potest." *Syst. Nat.* p. 219. But in this case *aurum dissipatur, non destruitur*.—It cannot be calcined by lead or mercury. [b]

3. It is pretty soft, and scarcely elastic or sonorous; becomes red hot before it melts; is not soluble in any pure acid, but dissolves readily in a mixture of the nitrous and marine acid (*aqua regia*); and is easily penetrated by quick-

[a] The specific gravity of gold has been universally reckoned one of its most certain and inimitable characteristics; but we now know, that weight alone is no certain criterion of gold, for pure platina is nearly as ponderous as this metal.

Fine gold immersed in water weighs near one nineteenth part less than in air.

The specific gravity of gold, or its comparative weight to an equal volume of water, according to the authority of Mr. Ellicot, whose accuracy is unquestionable, did not exceed 19,207.

A mass of fine gold, according to Dr. Lewis, weighing in air 13,447, being weighed in distilled water of the temperature of 53 degrees of Farenheit's thermometer, the loss in water was 694, whence the gravity turns out 19,376; the balance thus loaded turned sensibly with half of one of the weights, so that the true loss in water could not be half a weight more or less than the apparent, and the gravity of consequence could not be so little as 19,362, or so much as 19,390.

Such is the density of this metal, that the finest gold leaf does not transmit a particle of light; and the accuracy of the experiment made by the Florentine academy for compressing water in a hollow golden sphere, is much suspected. It is probable, that the interstices through which the water issued were not the pores proper to the gold in its natural state, but an enlargement of these, occasioned by the parts of the metal having been forced asunder

by the incompressibility of the water, and the violence of the pressure.

[b] Its colour and beauty are of great durability, being injured neither by air or moisture, nor by any kind of exhalations which usually float in the atmosphere. In this property consists great part of the excellence of this metal for ornamental and mechanical uses; it is only liable to be sullied from the simple adhesion of extraneous bodies; but its beauty may be recovered without any injury to the surface of the metal, by a solution of soap, fixed alkaline salts, vol. alkali, or spirit of wine; the last is used with more safety in restoring the lustre of gold.

Gold melts in a low white heat, and, when in fusion, the surface appears of a luminous bluish green colour.

The greatest degree of artificial heat does not alter the nature of gold. Hankel observes, that gold was exposed to the heat of a glass furnace of the Duke of Holstein for thirty weeks, without undergoing any change of quality, or diminution of weight. Mr. Homberg however reports in the Memoires of the French Academy, that he exposed gold on a piece of charcoal to a burning lens, and that he converted one part of it into glass, and dissipated another in fumes. However, he should have ascertained the purity of his gold, and revived his glass into gold, in order to have sufficiently proved his experiment.



silver, provided it be pure. "Argento vivo puro avide se unit, crudo non tam facile ut vulgo dicitur ne in calore quidem." *Boer. Chem.* i. 35.—

4. It is the most ductile and malleable substance known. "Ego ex auri 3i. equum fabricatum vidi omnibus lineamentis vivum emulentem, longitudo pedis Romani, altitudine ferme pari, qui præ tenuitate palpari manibus vix potuit." *Worm.* p. 114. "Augustæ Vindelicorum artifex singulari encheiresi ex gr. i. auri duxit filum 500 pedum." *Cassius de auro*, p. 77. *B. Chem.* i. 34. "One grain of gold may be made into as much leaf as will cover 45 square inches of surface." *Savary's Dict.* ii. p. 911. Gold-thread is only silver-thread gilded; for which they take one part of gold for 180, and sometimes 360 parts of silver. Of this finest thread one drachm will measure 404 Paris feet. *Vid. Mem. Acad. Roy. ann.* 1713. where it is asserted, that the thickness of the gold in the thread is not sometimes the 500,000 part of a line, (*i. e.* the twelfth of an inch) or 6,000,000 part of an inch. [c]—"Aurum molle est et adeo ductile, ut 651,960 ultra suæ massæ molem extendi possit. In igne vulgari fixum est, nec nisi in ardentissimo solarium radiorum foco, per longum temporis spatium detentum, in auras dissipatur." *Geoff.* i. 315. *Vid. Cramer.*

"Gutta soluti in aq. regia auri admista lbj. sp. v. r. sapore metallico imbutit, et aliquot mensuras aquæ tenentes gr. ii. stanni soluti, convertit in colorem obscure purpureum." *Hoffm. B. Chem.* i. 34. Auri vitrum rubrum is mentioned from *Homburg*, but it is found to be a mistake. *Vide Macq. Elem. de Chymie Theor. Paris* 1751. in 12mo. p. 65. Solutio lutea is found in *Lin. S. N.* p. 184. "Aurum sulphure communi calcinatur, si ignito et candenti sulphuris massa admoveatur." *Geoff.* i. 315. "Aurum purissimum si funditur cum sulphure, manet perfecte idem ac ante fuit, et patitur sulphur liberrime comburi, ipsum interim persistens illibatum, modo fuerit defæcatissimum." *Cram.* i. p. 63. And *Macquer* observes, that "pure sulphur has no effect on gold;" but adds, that "being combined with an alkali into a *kepar sulphuris*, it unites therewith very readily. Nay, so intimate is their union, that the gold by means thereof becomes soluble in water; and this new compound of gold and liver of sulphur, being dissolved in water, will pass through the pores of brown paper without suffering any decomposition."

Gold is found almost every where, more or less, in the old as well as new world; and that naturally free of both sulphur and arsenic, more than any other metals; and never in any regular form, but in irregular bits, or larger masses. Its principal matrices are a flint, chiefly that called *quartzum album*,

[c] On the ductility of gold depend several arts and manufactures, in which we see it extended to an amazing tenuity, and variously applied on the surface of other bodies, both for their ornament and preservation. In an experiment of *Reaumur's*, forty-two square inches and three tenths of gold leaf weighed one grain Troy, and *Mr. Boyle* found that  $50\frac{7}{16}$  weighed but a grain. One grain of gold, according to *Reaumur* and *Dr. Lewis*, on the flattened wire, stretched to the length of 401 feet, to the sur-

face of 100 square inches, and to the thinness of 492,090 parts of an inch. Perhaps if equal pains was bestowed on other metals, they might be extended to nearly the same degree.

Such is the tenacity of gold, that its thread of one tenth of an inch of diameter supports a weight of five hundred pounds.

When gold is hammered for a long time, it becomes a harder, more elastic, and a less ductile metal; but it recovers its ductility by a red heat.

wherein

wherein the largest and most solid pieces of native gold use to be hid, of which I have a specimen from the East Indies; (*b*) Lapis lazuli, which contains it in little sparkles or scales, but not so pure as the former; (*c*) Sand, or fat slimy earths. But this native gold has always more or less silver mixed with it. It is found also in silver ores, and in the ores of other metals containing silver, as lead.

“Vix datur in rerum natura fabulum, quin aurum in se contineat, sicut et plurimæ terræ limosæ pingues idem ferunt; sed rarius adeo fertiles sunt ut operæ pretium solvat illud per elutriationem & amalgamationem inde extrahere. Aurum hoc nativum semper argento mixtum est, quanquam (*c*) magis quam (*a*) et (*b*).” Vid. *Cramer*, i. p. 227, 230, where he observes, that he knew no minera propria auri, that is, no ore wherein the greatest part of the metal it contains is gold: adding, “Mineræ auri improprie, præter argenti mineras, habentur nullæ, in his enim solummodo aurum sulphure et arsenico penetratum formam metallicam deposuit. Quod si vero in cæteris mineris deprehenditur aurum, una cum hoc longe major conjuncta est argenti copia; ut ideo potius ad argenti mineras pertineant.” Hence auripigmentum contains no gold; and far less can it be called a minera auri, as Dr. *Lifter* would have it, and *Dale*, edit. 2. p. 53. and edit. 3. p. 35. where he says, “Aurum reperitur in auripigmento. Vid. *Auripigmentum* infra.

Bits of native gold are frequently found in Scotland, sometimes of more than gr. 30 weight, particularly among the lead-hills. My Lord *Hopetoun* has some specimens of this. Mr. *Boyle* had bits of Scots gold of more than 3iij. weight, whose specific gravity, at least of one of 43 grains, was to water as  $12\frac{2}{7}$  to 1, or as 12,286 to 1000. See his hydrostatical way of estimating ores in his works, vol. v. p. 3—6. “It is demonstrable, says Mr. *Crawford* of *Drumsay*, “from unquestionable vouchers, the records of the mint, that in the reign of King James VI. we coined 119 stone weight of gold, and 986 of silver, within the space of one year.” Vid. *Pref. to the Camp*. 1548 and 1549. p. 28. [*d*]

The

[*d*] It has been till of late supposed, that gold was not to be found in the earth but in a native, pure, or virgin state; but we now know from the authority of *Cronsted*, that it has been found even mineralized.

According to *Cronsted* there are two principal species of gold ores.

I. AURUM NATIVUM, which appears under the following varieties.

1. Thin superficial leafed gold.
2. Thick, in the form of spires.
3. Crystallized, which consists of angular or crystalline figures.
4. Washed gold, which is washed out of sand, wherein it lies in the form of loose grains or lumps.

Though gold is found frequently adhering to quartz, yet we have many instances of its ad-

hering to lime-stone in the province of Westmoreland, and other parts.

## II. AURUM MINERALIZATUM.

### 1. Aurum sulphure mineralizatum.

*a.* Aurum sulphure mineralizatum mediante ferro. Pyritical golden ore.

*b.* Aurum sulphure mineralizatum mediante mercurio.

*c.* Aurum sulphure mineralizatum mediante zinco et ferro aut argento.

Gold in its mineralized state is so far entangled in other bodies as not to be dissolved by aqua regia.

*a.* is found in the province of Smoland, and contains an ounce of gold and less in an hundred pounds.

*b.* is said to be found in Hungary.

*c.* At Schemnitz in Hungary are found zinc ores



The gold mine of *Cbrennitz* in *Hungary* is still famous, in which they have wrought about a thousand years, so as to have got now to the depth of 170 fathoms. Here they find pieces of native gold as big as the palm of one's hand; also red, white, blue, and green vitriols. See *Dr. Brown's Trav. in Harris's Collection*, vol. ii. p. 515. At present however Europe is furnished with gold chiefly from Peru and Chili, where it is found sometimes 23 carats fine, that is, having only a 24th part of silver in it. See *Savary's Dict.* vol. ii. p. 902. 914. [e]

"In the mountains of *Cbili* it is separated from the earth by washing, whence the places are called *Lavaderos*. It is found there sometimes in pieces of 6, 8 or 10 marcs called *pepitas*. Gold is separated from its matrices by calcining, melting, powdering, washing and mixing with mercury: which being distilled off, the gold is fused, and formed into ingots or plates." Vide *Sav.* l. c. [e]

But still this refined gold retains silver: from which there are several ways of separating it; as by aq. fortis, aqua regia, antimony, cementation, &c. Vide *Cramer* ii. p. 84—123. And yet, after all, it is said that the purest, and finest gold wants a 32d part of a carat to be 24 carats fine, or absolutely fine or pure gold; there being always one part of silver, in 767 parts of gold.—How can this be known? All other metals are easily separated from gold, or calcined by lead in the copel. [f]

## S E C T.

ores, which contain a great deal of silver, and this silver is very rich in gold.

It is certain, that though gold itself does not unite with sulphur, yet by the mediation of other bodies it may be made to form a union with it; therefore we ought to attend to such mundicks as are found where gold ores are dug.

[e] Gold is separated from quartz or sand by reducing them to powder, and washing them in water; the gold subsides, from its greater specific gravity; and what sand may still be united with it is separated by amalgamation. The superfluous quantity of mercury passes through leather, and what remains more intimately united is dissipated by heat, while the gold from its fixity remains behind; and this is the foundation of all the operations which are employed by the Spaniards in their rich mines of Peru, for separating their gold from other matters which adhere to it.

[f] The purity of gold is best ascertained by its specific gravity. Gold may be separated from every metal, except platina, by being melted with crude antimony: the sulphur of the antimony attracts every metal, except gold and platina, and separates them; while the regulus of antimony unites with the gold. The reason why crude antimony answers better than sulphur alone, is that the sulphur being some-

what fixed by the reguline part, it is detained, and not allowed to consume, till it forms the union with the metal which it separates from the gold. The regulus is separated from the gold by exposing them to a fresh fusion with sulphur; or by adding a quantity of sulphur along with the crude antimony, a less quantity of regulus is united to the gold.

The exposing them to the force of fire alone will be sufficient to dissipate the regulus. In this case as gentle a heat as possible should be employed, to prevent any dissipation of the gold, which the regulus promotes; and what regulus may still remain is best separated by strewing a little nitre into the crucible, which will calcine the remaining part, and then the gold, which is now perfectly pure, should be melted with a little nitre and borax, and its purity examined.

The sulphur unites with the metal formerly adhering, and forms the scoriæ, which are frequently rich in silver, when that metal has been in great quantity in the gold submitted to this experiment.

There are different methods of separating gold from admixtures of other metals. If only a base metal be mixed with gold, they may be separated by cupellation with lead or bismuth. However, gold is not so perfectly purified by this process as has been commonly supposed.

It almost always retains a small portion of the lead itself, sufficient to render it somewhat brittle.

## S E C T. II.

Gold is said to be cordial, diaphoretic, and a purifier of the blood; and is commended by some as an antidote to mercury and arsenic, though condemned by others as a poison. But in its metallic state, being absolutely indissoluble and unalterable by the vis vitæ, it can have no effect, except so far as by its weight, solidity and mechanical figure, it may act on the primæ viæ and their contents.

“Balsami seu calidi nativi, cordisque summum corroborans est; unde & in omnibus morbis in quibus vires reficiendæ sunt, cum successu exhiberi poterit. Mundificat insuper sanguinem, noxiorum scil. humorum discutione & diaphoresi. N. B. Crudum aurum foliatum veteres multis comiscuere compositionibus; verum mehercule cui bono, præterquam quod oculos pascat non video. Solidior enim & compactior ejus substantia est, quam ut a calido nostro resolvi inque actum deduci queat. Nec sufficit, quod nonnulli mutata cordis ac auri effluvia sympathica statuant, atque ea propter aurum foliatum exhibent. Etenim præterquam quod eadem facilitate id destrui possit, qua citra rationes asseritur, applicari possit extrinsecus inajori in copia, atque dubio procul majori cum utilitate, minoreve vel nullo cum dispendio.” *Schroder*, p. 368, where are more than 10 pages on the preparations, viz. purgatio, calcinatio, volatilisatio, extractio, sublimatio, salificatio, & mercurisfactio.—But

1. It has neither taste nor smell; has no effect on animals, or animal fluids; nor on the surface of our bodies, further than to keep off the air, or prevent external injuries. “Exhibetur ordinarie bracteatum; interponitur utiliter inter palpebras vulneratas aut excoriatas.” *Nucl. Belg. M. M. (Bruxelles 1719, 8vo.)* p. 36.

brittle. From this it is purified by injecting upon it in fusion a little corrosive sublimate; the acid of the sublimate corroding the lead, which now arises in scoriæ round the sides of the vessel, no longer miscible with the gold.

When mixed with silver, it parts both with its copper and lead more easily by cupellation.

Silver, which is equally indelustrable as gold either by fire or lead, is separated from gold by acid menstrua; for this purpose we must examine whether the mixture contains most gold or most silver. If the gold is found to prevail, the metal is to be flatted into plates, or granulated, and put into a proportionable quantity of aqua regia, consisting of four parts of nitrous acid and one of sal ammon. which dissolves it in largest proportion, and leaves the silver in the form of powder at the bottom. The silver may be washed and dried, and melted with a little tallow and some nitre or borax, and the gold recovered by precipitation.

If the quantity of silver is three fourths of the

mixt, the nitrous acid should be employed, which will dissolve the silver, and leave the gold untouched. This process is called quartation, and affords a more commodious separation than the aqua regia.

Gold may likewise be separated from silver by cementation, which is performed by detaching the acid from nitre by the vitriolic acid in green vitriol, and applying it in the form of vapour to the mixt; but this process is now little employed, as it is attended with a considerable waste of the subject.

When gold is perfectly pure it is called gold of twenty-four carats, the meaning of which is, that in an ounce of the metal all the twenty-four scruples are pure gold. If only twenty-three scruples are fine gold, and the other scruple a baser metal, it is called gold of twenty-three carats; and in general the number of carats by which the fineness is expressed, denotes the number of scruples of fine gold in an ounce, or twenty-four scruples of the mixt.



2. It is not dissolvable in our fluids, nor alterable by the vis vitæ. Indeed “*Cl. Joel Langelottus* publice scripsit, tritu solo aurum penitus posse solvi. “*Expertissimus autem Hombergius* asseruit simplicem aquam solo continuato cum aqua attritu valuisse metallorum ut cæterorum ita, & auri ipsius corpus “penitus dissolvere in formam potabilem.” *Boerb. Chem.* v. i. p. 585. *Lemery Chym.* p. 77. also observes this, and says it may be thus made to pass a common filter; but owns it is not a perfect solution, and that it precipitates in “some years. *Boerhaave* however since found it impracticable. “The great “promises, says he, of dissolving gold, by grinding it either with or without “water, made by two great men in this art, are not performed by these our “labours. It was only a vain hope. They avoided the difficult labour, and “hastened precipitately to idle conclusions.” *Phil. Transf. Abridg.* vol. viii. p. 727. Vide *Transf.* No. 444. for Nov. and Decemb. 1736. But granting it were thus dissolvable, it cannot be thence inferred that our stomachs could make the solution: and if it could be previously so attenuated as to enter the lacteals, as perhaps it is when dissolved in aq. regia, or by the hepar sulphuris, its specific gravity would probably increase the momentum sanguinis, and consequently attrition, heat, the fluid secretions, &c. which none, as far as I know, have observed: and even the aurum fulminans, though called a diaphoretic, by the best accounts we have of its effects seems to go no further than the primæ viæ.—What is the taste of a solution of gold? Is it corrosive, or more so than the menstruum used?

3. The virtues attributed to gold are ill vouched. *Hippocrates* is silent as to its qualities; only περι αερων, (*Lind.* i. p. 336. §. 13.) he says, that the water that comes from the veins of iron, brass, silver or gold are not good, ἀλλὰ σκληρά τε καὶ καυσώδεια, duræ ac æstuosæ, on account certainly of the other substances that are mixed with it in these veins. For that he did not think the metal itself hurtful appears by a passage in his book περι αρθρων, (*Lind.* ii. p. 783. §. 27.) where treating of a fracture of the jaw-bone, he writes, “Et si distorti fuerint dentes juxta vulnus commoti, postquam os directum fuerit, dentes inter se conjugare oportet, non duos solum, sed etiam “plures, atque hoc maxime auro, sin minus lineo filo, donec os corroboretur.” But though it is an antidote to mercury according to *Dioscorides*, yet *Pliny* and some others of the antients reckoned it virulent. “Argentum “vivum potum vim principalem habet, suo enim pondere interna perrodit.— “Auri limata scobs, id est, ramentum quam tenuissimum, epota, mirabili est “contra hydrargyrum auxilio.” *Dioscorides*, l. 5. c. 110, edit. *Saraceni* 1598, in fol. p. 367. Hence *Dioscorides* was not ignorant of the effect of gold on mercury, though mistaken as to the nature of the quicksilver.

“Aurum, says *Pliny*, plurimis modis pollet in remediis; vulneratque, & “infantibus applicatur, ut minus noceant quæ inferuntur beneficia. Est & “ipsi superlata vis malefica, gallinarum quoque, & pecorum fæturis. Remedium est abluere illatum, & spargere eos quibus medere velis. Torretur “& cum salis grumo pondere triplici misto, & rursus cum duabus salis portionibus, & una lapidis, quem *sciston* vocant. Ita virus tradit rebus una “crematis, in fictili vase, ipsum purum & incorruptum. Reliquis cinis servatus in fictili & ex aqua illitus lichenas in facie sanat, & quæ vocantur “hæmorrhoides. Quod si trito (al. nitri) spuma adjiciatur, putria hulcera & tetri

“ tetri odoris emendat. Ex melle vero decoctum cum melanthio, & illitum  
 “ umbilico, leviter solvit alvum. Verrucas curari eo *M. Varo* est auctor.”  
 Thus *Pliny*, l. 33. c. 4. p. 794. recommends it for wounds, ulcers, witch-  
 craft; but only externally on account of its virulence. *Galen* mentions it  
 often, but seems not to have used it as a medicine; and all that he says of its  
 qualities is, that it is cold and dry. “ Lapidum substantia constans stabilisque  
 “ propter siccitatem & frigus est, ad eundem modum æris & ferri, & auri, &  
 “ uno verbo omnium quæ ex terra sunt corporum.” *Metb. Med.* l. 9. *Class.* 7.  
 p. 60. H. — This is all I have met with in the ancients concerning the virtues  
 of gold. *Aetius* indeed, *Tetr.* 3. *Serm.* 1. p. 501. F. has a chapter on the cure  
 of such as have swallowed gold, brass or the like; but it is when bloody stools  
 are the consequence, and therefore owing to wounds made by them on account  
 of their mechanical figure.” “ Auri usus in medicina olim Græcis fuit in-  
 “ cognitus, Arabes primi ejus virtutes commendarunt.” *Geoff.* i. 315. The  
 Arabians only ascribed imaginary virtues to it; but the Greeks knew its na-  
 ture better than they.

*Avicenna* says, “ Aurum est equale & subtile. Limatura ejus ingreditur in  
 “ medicinis melancholiæ; & melius cauterium, & velocius sanabile est quod  
 “ fit cum cauterio auri, retentio ipsius in ore removet fætores oris; & in-  
 “ greditur limatura ejus in medicinis Alopecie & Tyriæ, (*Lichenis Math.*)  
 “ liniendis, & in iis que bibuntur. Confortat oculum in alcohol positum.  
 “ Confort doloribus cordis & tremori ipsius, & malitiæ animæ, & ei qui solus  
 “ loquitur.” l. 2. *Traët.* 2. c. 78. p. 107. (Vide etiam *Mathiol.* p. 936.)  
 And in his *Libellus de medicinis cordialibus*, he says, “ Aurum judicatur inter  
 “ judicium argenti, & judicium hyacinthi, & est quidem infra hyacinthum &  
 “ supra argentum, cujus quidem complexio est temperata, aliquantulum vi-  
 “ cina calori, & est ejus operatio a proprietate. Argentum aliquantulum est  
 “ frigidum & siccum; & ejus effectus similis effectui hyacinthi, excepto quod  
 “ est multo debilius.—Hyacinthus temperata esse videtur; inest autem ei pro-  
 “ prietas lætificandi & confortandi cor: & fortiter obviandi veneno. Et hæc  
 “ quidem proprietas est virtus non suis attribuenda componentibus, sed manat  
 “ ab ipso, eo modo quo ex magnete emanat virtus, per quam attrahit ferrum  
 “ ex longinquo.” Vide p. 562. G. and 563. G. — If gold and silver are  
 weaker cordials than jacinth (which acts at a distance), either of them will do  
 better in the purse than in the stomach.

But however-much the Arabians, and their followers, used it as a cordial, &c.  
 few of the moderns now imitate them. “ *Fabricius* (*in Obs. Med.*) dicit de  
 “ auro & argento, in laminas deducto, item sentio, quod de gemmis. Si eni-  
 “ auro nihil demat ignis, quantumvis violentus, quid possit in illud, calor  
 “ noster tantillus? De gallina *Silesiaca* quod sparsum sit superioribus annis,  
 “ notum esse potest.” *C. Hoffman*, *De medicam. officinalibus. Franc.* 1667, in 4to.  
 p. 545. *Nicolaus Monardes*, after observing that some ordered a piece of gold  
 to be boiled with the meat of weak and even dying persons, though it could  
 yield nothing but its adhering fordes; whilst others extinguished hot gold in  
 water in the refining houses, to render it cordial, while the substance used in  
 refining may rather communicate to it a poisonous quality, adds: “ Credant  
 “ mihi ægri, neque sumptus faciant aurum injiciendo in medicamenta quæ  
 “ sumunt, neque aurum in vino aut aqua restinguant: neutra enim ratione  
 “ medicam



“ medicam facultatem adipiscuntur, quæ eorum morbis utilis sit. Solum aurum cufum magnis facultatibus peditum est: nam cor exhilarat, tristitiamque & melancholiam adimit, omnes quoque hominis vires & potentias reparat, robor addit ubi deest, & ad omnia universale remedium est, præterquam adversus mortem, quæ illi haud cedit.” Vide *Monard. De Ferro*, p. 32, 33. in *Clusii Exot.* Ludovicus also (*De Pharm.* p. 163. *Operum omnium, Francof.* 1712, in 4to.) says pleasantly enough, “ Satius est si medicus practicus, hoc ævo, sibi e medicamentis aurum, quam ex auro medicamenta paret.”

It is excluded our Dispensatories. Mr. *Geoffroy* however cannot part with it: for though he owns that “ de ejus virtute non plane constat;” that it is with good reason doubted, whether it can be of any use in physic, &c. yet he adds, “ Illud tamen e cordialibus præparationibus pharmaceuticis exulare, totius Arabum scholæ respectu dubitamus.” *M. M.* i. 316. And accordingly the French retain it in several compositions: and offer instances (at least one) of wonderful cures made by it, *ex. gr.* that related by Mr. *Charas* in his *Pharm. Royale, Paris* 1676, 4to. p. 313, which is as follows:

“ Mr. *Pierre Couder*, apothecary in *Rouvergne*, assures me, says *Charas*, that he attended a lady aged sixty years, whose face was covered with red unseemly pimples and pustules in an extraordinary manner, and who had a very stinking breath: that by the advice of physicians, he gave her for diet pullets, which had been first fed (for eight days) on a paste made of boiled vipers and grain. These she continued to eat for six months; and for other six months she had capons, which had also been fed for eight days, before they were killed with the same paste, but mixed with gold leaf: that at the end of this last six months, the lady was perfectly cured, lived to eighty in good health: and her grave being opened four years after she was buried, she was found as entire, as when she was laid in the tomb: that he, *Couder*, to recover the gold, of which his capons had swallowed eight marcs, collected their dung, calcined it, amalgamised the ashes with mercury, evaporated, fused, &c. but all he got was but about two marcs of the specific gravity of common gold, but of a paler colour.” Thus Mr. *Charas*.

I fear the capons had not their full dose of the gold leaf; for two marcs or 3xvj. of gold might afford about 140 folia auri, for every day of the six months, or enough to gild the paste sufficiently; or their precious dung might have been stolen by others: either of which is more probable, than that the capons should have digested six marcs of gold; or that their flesh, however fed, which could not keep the lady alive, should preserve her in the grave four years free from corruption. And Mr. *Lemery* (*Chem.* p. 86.) with more reason affirms positively, that gold is altogether indigestible in animal stomachs; and that it is evacuated by stool, or with the fæces alvinæ, the same both as to quantity and quality as it was given them.

## S E C T. III.

The dose therefore of gold need not be determined. The folia are sometimes used to cover or beautify pills, electuaries, bolusses and drams. The aurum fulminans, bezoardicum solare, tincturæ, &c. are more costly than useful preparations, and never to my knowledge prescribed here.

Aurum fulminans, or scloppetans is gold dissolved in aqua regia, then precipitated with the oleum tartari p. d. washed well and dried. Auri puri ʒi. will yield of this yellow powder ʒiv. Heated to a certain degree, it flies off with a great noise; hence it has its name. And if it be rubbed hard in a marble mortar with a brass pestle, it now and then makes little fulminations, some part of it every time flying away in the air, so that in time it may be all forc'd off. Vide *Lemery Chym.* p. 98. The common pulvis fulminans is composed of nitre p. iij. salis tartari p. ij. & sulphuris p. i. powdered and mixed together.

The aurum fulminans is an acrid purgative, and said to be diaphoretic: it is recommended by some in childrens gripes, given a gr. jß. ad gr. ij.

The late Prof. *Albinus* (in MS.) is said to have valued it much in this case, and given it even recens natis in the above dose: though others think it not safe even for adults. There are several instances of the bad effects of this aur. fulm. in *Fred. Hoffman. Dis. de medicamentis infecuris & infidis.* Vide *Dis. 2. Diff. 7.* p. 289. ad 365.

“Auri solutio, cutim tangens, purpureo hanc colore tingit. Est caustica.  
“Interne sumpta venenata. — Aurum fulminans lente calefactum, ubi pervenit ad certum ignis gradum, subito magno cum sonitu disploditur, ut evanescat: miro eventu, nec explicabili opinor a priori, neque ex analogia. —  
“Qui pulverem in vase ingenti vitreo explosere, pulvisculum recuperaverunt tenuissimum auri. — Qui pulverem hunc hominibus ingesserunt, arcani magno pretio promittentes eximia, dolores, tormina, aliaque mala excitabant.”  
Vide *Boerb. Chem.* ii. p. 498. Vide *Schrod.* p. 370.

“Hic pulvis (aurum fulminans scil.) vel levi affricu calefactus, magnam fragorem excitat. Intus sumptus diaphoreticus existimatur, sed verius alvum laxat, ut observavit *Emanuel Konig, M. D. Basiliensis, & D. Ludovicus*, qui asserit hanc auri præparationem, in febribus ardentibus ad diarrhœam inclinantibus, alvum præter intentionem & sæpe funeste movisse.” *Geoff.* i. 317. But levis affricus is not sufficient: nor is *Ludovicus* fairly quoted; his words are, “Aurum fulminans alvum in continuis nonnunquam periculose (sive remissioris edulcorationis, sive affectus eo tunc inclinantis causa) movens, quia exhibentis potius error est, hic non attingemus. Sed nec debite tractati propinatique tanta singulariorque est diaphoresis.” *De Pharm.* p. 160. — Acids destroy the fulminating quality of gold.

Bezoardicum solare is a calx of gold and antimony which may be several ways prepared. Vide *Schrod.* p. 417. Neither *Lemery, Boerhaave*, nor *Geoffroy* mention it. It is recommended by chymists as a useful diaphoretic in many diseases. But if it is not cathartic, it is useless.



“ Vires bezoardici solaris (*Crolliani*) summis Crollius effert laudibus in lue  
 “ venerea, peste, podagra, hydrope, febribus, obstructione lienis. Dosis a gr. iij.  
 “ ad viij.” *Schrod.* l. c.

*Schroder* gives us about twenty aurum potabiles and tinctures; and wonderful are the virtues he ascribes to them. “Credat qui vult.” But Mr. *Geoffroy* gives one which he thinks the best of the kind. “Cum a plurimis auri  
 “ tinctura, seu aurum potabile exoptetur, omnibus elegantior & prestantior  
 “ hæc mihi visa est. R Solis purissimi ʒß. spirit. salis ʒij. f. solutio, cui af-  
 “ fundatur olei essentialis limpidi rosmarini ʒj. Liquores confusi agitentur.  
 “ Subsidebit spiritus salis flavo colore spoliata, & oleum flavo colore tinctum  
 “ supernabit. Oleum ab spiritu salis per inclinationem separetur. Miscea-  
 “ tur cum spiritus vini rectificati ʒiv. vel v. Digeretur simul per mensem.  
 “ Mistura purpurascentem colorem acquirit. Diaphoreticum est, & sudorife-  
 “ rum. Commendatur in febribus malignis. Dosis a gut. iij. ad xv. Verum  
 “ tinctura genuina non est cum sit tantum aurum tenuissime divisum, oleo  
 “ innatans. Neque ullam auri tincturam radicalem novimus. Hujus vis  
 “ præcipua ab oleo rosmarini pendet.” *Geoff.* i. p. 316, 317. The same  
 may be done with any essential oil; but the gold cannot be dissolved in spiritu  
 salis: it must be aq. regia to make the experiment succeed. But that most  
 subtle, volatile and light oil, called æther, possesses the property of separating  
 the gold from the aq. regia in a more remarkable manner than any essential  
 oil; for though these oils rob the aq. regia of the gold, they can retain it only  
 a short time; while the æther never precipitates it, or lets it fall down. Vide  
*Macq. Chem. part 2. p. 231. [g]*

## LECTURE

[g] Aqua regia, made by using any propor-  
 tion of nitrous and muriatic acids, will dissolve  
 gold, though neither acid singly shews any ef-  
 fect on that metal in its metallic form. It is  
 most conveniently prepared by adding to the ni-  
 trous acid any salt containing the muriatic acid;  
 the sal crud. ammoniac. in the proportion of  
 one fourth part, is the best. The nitrous am-  
 moniac formed by the combination increases  
 the menstrual power of the aqua regia. Gold  
 has a very great attraction to phlogiston, and  
 will yield it to no substance in nature, except  
 the nitrous acid. The muriatic acid, which is  
 now the universal menstruum for metals, acts  
 in dissolving the gold, while the nitrous de-  
 taches the phlogiston, a previous and necessary  
 step to the solution of all metals.

The solution of gold in aqua regia is corro-  
 sive, as are all other metallic solutions. It  
 tinges of a violet-colour the fingers, and other  
 animal substances.

When it is exposed to evaporation and cool-  
 ing, it yields small yellow transparent crystals,  
 not unlike topazes. The evaporation being  
 continued by a greater heat, the whole of the  
 aqua regia is dissipated, and there remains a  
 calx of gold of a yellow colour.

Gold may be precipitated from aqua regia  
 by those substances which precipitate other me-  
 tals, viz. Alkaline salts both fixed and volatile,  
 calcarious earths, and many other metals.

The volatile alkali precipitates gold more ea-  
 sily than the fixed. If a fixed alkali be added  
 to a solution of gold in an aqua regia prepared  
 without sal ammoniac, the precipitation takes  
 place but slowly; but if the fixed alkali be  
 added to the aqua regia prepared by sal am-  
 moniac, there is a quick and more copious pre-  
 cipitate, because it is the vol. alkali separated  
 from the nitrous ammoniac that becomes the  
 precipitant.

The precipitates of gold, when exposed to  
 a melting heat without addition, are reduced to  
 their metallic state of malleable gold.

The precipitates of gold obtained by adding  
 the volatile alkali to a solution of that metal in  
 aqua regia, or by adding the fixed alkali, if the  
 aqua regia has been prepared by sal ammoniac,  
 affords us the aurum fulminans, so called from  
 its property of exploding with a considerable  
 force and noise upon the application of heat.  
 Its power seems to depend on the nitrous am-  
 moniac which adheres to it; for unless the  
 aqua regia contains that salt, the precipitate  
 has

## LECTURE XIII.

## ARGENTUM VIVUM.

## SECT. I.

**A**R<sup>G</sup>ENTUM vivum, hydrargyrus, mercurius, *offic.* Argentum vivum, *Agricol. Foss.* lib. 8. p. 642. b. *Werm.* 126. *Charlet. Foss.* 50. *Dale*, p. 31. *Geoff.* i. p. 244. Mercurius, argentum vivum, hydrargyros; Arabice Zaibar vel Zibach, Barbare Azock, Azoth, *Schrod.* 402. Quicksilver.—This is a very fluid, heavy and opaque metallic mineral, of a shining silver colour, without taste or smell.

1. Mercury comes nearest to gold in specific gravity, being to water in weight as 14. to 1. nearly.

2. It is also as simple and homogeneous as gold, if not more so; and yet very volatile by heat. “Totus volatilis in igne, gradu caloris non multo majore quam ebullientis aquæ, specie funi.” *Boerb. Chem.* i. p. 36. “Mercurius triplo fortiore ignis gradu eger, ut volatilis fiat quam aqua.” *Cramer* ii. p. 79.

3. It is divisible, by the smallest force, into very minute, and always into globular particles, so far as they can be seen; and that in the coldest as well as hottest seasons. “Nullo frigore constringitur in solidam massam. An ergo aurum fluens?” *Boerb. Chem.* l. c. *Vide Comment. Lyps.* vol. viii. *pro an.* 1759. p. 358. vel *Excerpt.* p. 83. *Experimentum Braunii.* [a]

4. It

has no such property; and that property is destroyed if vitriolic acid, fixed alkali, or other such substances, which decompose nitrous ammoniac, be added to the aurum fulminans. Nitrous ammoniac by itself is possessed of this power of fulminating by heat.

The precipitates of gold by alkaline salts are soluble in vegetable acids, according to *Margraaf. Opusculæ Chymique.* tom. i. p. 122. They are likewise soluble in fixed and volatile alkalies; so that in conducting a precipitation care should be taken to add no more of the precipitant than is necessary. The same thing happens in the precipitating silver from the nitrous acid by the vol. alkali; if more alkali be added than saturates the acid, the precipitate is redissolved.

The impregnation of gold in essential oils and æther is rather to be considered as a tincture of gold from its minute division of parts. Its metallic state is not destroyed by such an union, and it is the safest method of giving that metal as a medicine, though a less active preparation than either the precipitates or solution of it in acids.

As from late experiments it appears that gold may be united with alkaline salts, or vegetable acids, perhaps a medicinal preparation could thereby be obtained more efficacious than the aurum potable, and less corrosive than that which arises from its union with aqua regia.

[a] It was long believed, that fluidity was as essential to mercury in its proper state as its volatility, and that it could only be rendered solid by such means as would entirely change its nature.

But we now know that it is rendered solid when exposed to intense degrees of cold, and in that state is so ductile, as now to be ranked by naturalists among the proper metals.

This has been lately proved by the experiments of the members of the academy of Petersburg. They took the advantage of an intense natural cold on the 25th of December 1759, so that the thermometer of Mr. Lisle stood at 111 degrees, which corresponds to 40 below 0 in Fahrenheit's.

They generated an artificial cold by means of nitrous acid and snow, so that the thermometer



4. It is dissolvable in aq. fortis, and aq. (b) regia, but not in vegetable acids. It also penetrates and adheres to gold, and most metals; also to bismuth and zink: which union or solution is called amalgamation. "Auro omnium facillime adhærescit, dein plumbo, argento, stanno, difficilior æri, vix ferro." *Boerb. Chem.* l. c. "Mercurius solvit aurum, argentum, stannum, plumbum, zincum, et bismuthum; cuprum vero paulo difficilior: vocatur hæc solutio amalgamatio. Omnia autem hæc amalgamata fiunt alba; et si multum metalli in mercurio solutum fuerit, pastæ instar spissescant. Ferrum et regulum antimonii, vel plane non attingit, vel arcanis (à nobis ignotis) artificiis eo disponendus est mercurius." Vid. *Cramer*, i. p. 31. The quicksilver is separated from such amalgamata by distillation: for by pressing it through thin alum'd leather some of it continues to adhere to the metal as some of the metals pass through. "Auri et argenti pasta, cum æquali circiter mercurii quantitate post expressionem conjuncta manet.—Argenti etiam et auri aliquid per alutam transit." *Cramer*. ii. p. 78, 79. [b]

Quicksilver is found either native, or in ore: the native commonly in lapide fissili, gryseo et cinereo, moliori, either in drops or smaller grains; but sometimes in larger quantities, so as to run out in small streams, as they are digging in the mines, whence it is called *Argentum vivum virgo*, or *virginium*. There is but one pure minera or ore of quicksilver, called *Cinnabaris nativa*, consisting almost entirely of mercury and sulphur. But this being commonly six times dearer than the quicksilver itself, it is only from the coarser ores or matrices that they separate it by distillation. The process is particularly described by *Cramer*, ii. p. 210, 217.

"Mercurius, ejusque minera cinnabaris, inter metalla omnia rarissime reperitur, ita ut computum, instituentem ll. Hoffmanno, (*Dissert. de Mercurio*), quinquagesies plus auri, quotannis ex terris fodinisque eruitur quam mercurii, vel ejus mineræ. Quod uti verissimum est, ita haud tamen minus

meter of Mr. Lisle fell instantaneously to 500 degrees, and remained stationary there, nor could it measure greater degrees of cold. On breaking the thermometer the mercury was found solid and ductile to the hammer: it remained so for about twenty minutes, when it recovered its former fluidity.

It is to be observed, that the generation of artificial cold or heat by the admixture of bodies, depends on the degree of either with which we set out. To be able to freeze mercury in this country would require the repeated additions of nitrous acid and snow, so that the cold generated by the first addition might be considered as producing the same effects with the natural cold of Russia: this would render such an experiment in this country both tedious and expensive.

[b] Mercury does not admit of any union with the calces of metals. It unites with most metals in their metallic state, either by simple mixture in the cold, or by the assistance of heat.

When mercury is united with metals they become more friable; and if the mercury is in a small proportion, they are reduced to a state of powder; if in a larger, they are converted into the form of a paste, which however has neither ductility nor tenacity.

Silver unites with mercury in the cold, and the specific gravity of the compound is even greater than that of the mercury alone. For this curious fact we are obliged to *Gellert, Chimie Metallurgique*, tom. i. p. 275.

Mercury is amalgamated with gold and silver for the purpose of separating them from their ores, or rather the stony and earthy matters which adhere to them, and likewise for the purpose of gilding.

Its amalgamating power is greatly increased by heat. It unites with difficulty with copper and regulus of antimony, and not at all with iron, cobalt, or nickel. However, according to Mr. *Cronstedt*, it may be united with iron by using a solution of green vitriol as a medium to promote the combination.

"quoque

“ quoque certum eſſe videtur, mercurium et ejus mineram, longe frequen-  
 “ tius, quam creditur occurrere, ſed non cognosci. Probabile id fiet confi-  
 “ deranti quod metallurgi mineralia incognita ſibi; ſolummodo examini in  
 “ igne aperto valido ſubjiciunt — tum quod de mercurii præſentia vix un-  
 “ quam cogitent, niſi cum ipſe vivus, in viſibiles guttulas collectus, vel coc-  
 “ cineus mineræ ejus cinnabaris color, oculis ſeſe objiciat. Accedit quod  
 “ cinnabaris, (quæ ramen ſi pura eſt, a cæteris mineralibus, quam clariffime  
 “ ſe diſtinguit) color, pondus, figura, ab aliis mineralibus admixtis, tantopere  
 “ immutantur, ut niſi experimentum inſtituatur, ſolo externo adſpectu neuti-  
 “ quam detegi poſſit.” *Cramer*, i. 231.

The only remarkable quickſilver-mines in Europe are the *Idrian*, *Hunga-  
 rian*, and *Spaniſh*. The laſt, which is at *Almaden*, is the oldeſt and richeſt.  
 The quickſilver from it, (which is all ſent to *America*) is found in the form  
 of cinnabar, yet requires no intermediate body to ſeparate it from the ſulphur.  
*Vid. Macq. Chym.* part i. p. 275. or a p. 274 ad 277. The Dutch are ſaid to  
 have by contract all the Hungarian mercury, which they bring by Vi-  
 enna in ſheep-skins, incloſed in barrels: they bring alſo ſome from China.—  
 The minera of quickſilver in Spain is red, ſpotted with white and black,  
 and ſo hard that it is wrought with gunpowder. In Hungary it is a reddiſh-  
 brown earth, or ſometimes a pretty hard ſtone. In Friuli it is a ſoft earth,  
 wherein the virgin quickſilver is found in little tears, and the common in a  
 hard ſtone. The Idrian, one of the Friuline mines, yields always one half, and  
 ſometimes two thirds of quickſilver. There is in a mountain in Peru, called  
 Juancabeluca, pretty near Potoſi, a mine five or ſix hundred feet deep, which  
 furniſhes very good mercury; the minera whereof is of a light-red colour,  
 reſembling that of bad-burnt bricks. *Vid. Savary Diſc.* ii. p. 1940—1942.

“ The deepeſt part of the quickſilver mine of Idria is betwixt 120 and  
 “ 130 fathoms. It affords both the virgin and plain quickſilver. The vir-  
 “ gin quickſilver is either found in the earth or ore naturally as it is, or falls  
 “ in ſmall drops, or ſometimes ſtreams out in a conſiderable quantity. Thus  
 “ ſeven years before, they had ſuch a ſtream coming from the earth, which at  
 “ firſt was as ſmall as a common thread, and afterwards as big as a good pack-  
 “ thread, but it did not continue above two or three days. They alſo reckon  
 “ that ſort of quickſilver, virgin mercury, which is ſeparated by water, in a  
 “ ſieve firſt, and afterwards in a long trough, with ſmall holes at one end,  
 “ without the help of any fire. Plain quickſilver is called that which is  
 “ forced by fire out of the ore. This ore is of a dark-brown colour, mixed  
 “ with red; but the beſt is a hard ſtone, which before they put into the fire,  
 “ is firſt groſſly powdered, and worked by the ſieve, to ſeparate the virgin  
 “ quickſilver, if any be found in it. The quickſilver ore of this mine is the  
 “ richeſt of all that ever I ſaw; for it generally contains half quickſilver, and  
 “ ſometimes, in three parts of ore, two parts of quickſilver. I ſaw in the la-  
 “ boratory, where the quickſilver was ſeparated by the force of fire, 16000  
 “ retorts of iron. They employ at once 800, with as many recipients in  
 “ 16 furnaces, 50 retorts in each, viz. 12 above and 13 below on each ſide.  
 “ June 12, 1669, I ſaw them carry away into foreign parts 40 ſaumes of  
 “ quickſilver, each ſaume containing 315 pounds weight, to the value of  
 “ 4000 ducats: it is carried upon horſes, two ſmall barrels upon each horſe.—

“ In



“ In the castle I saw 3000 saumes of quicksilver at once, all made up in double leather; and in another house as much of the best ore as could be separated in two years time, unless they should have more than ordinary plenty of wood.” Thus Dr. *Brown*. Vid. *Harris*. Col. ii. p. 520. [c]

Some prefer the Hungarian quicksilver, others that of Almaden in Spain; but if equally pure, they are equally good. It ought to be of a fine shining silver-colour, very quick, and easily separated into very small spherulæ. If it is brownish, or lead-coloured, or sticks to the fingers, or forms trains or tails in separating, or when rubbed in a glass mortar with vinegar alters the colour or taste of this liquor, it is not pure, but has lead, bismuth, zinc, or something else mixed with it, and ought to be purified by distillation before it is used in medicine.

That quicksilver is the hydrargyros of the Greeks, and argentum vivum of the Latins, is evident from *Dioscorides*, l. 5. c. 110. p. 367. and *Pliny*, l. 33. c. 6 and 8. p. 796. though they seem not to have known much of its nature and qualities. “Asservatur, says *Dioscorides*, in vitreis, plumbeis, stannosive aut argenteis vasis, quandoquidem aliam omnem materiam ita exest, ut permanat, atque prætersiuit. Vini perniciosam habet, suo enim pondere interna perrodit.” And *Pliny* says, “Est et lapis in his venis, cuius vomica liquoris æterni, argentum vivum appellatur, venenum rerum omnium. Exest et perrumpit vasa permanans tæbe dira. Omnia ei innatant præter aurum; id unum ad se trahit.”

“Mercurius vivus, mercurius currens, argentum vivum, hydrargyrum, est corpus semimetallicum, fluidum, siccum, mobilissimum, in igne fortiori totum volatile, post aurum ponderosissimum, et argenti instar nitens. Dividitur vulgò in virgineum et vulgare; hic partim ex cinnabari nativa, partim ex minera dura, partim ex gleba molliori, distillationis descensoriæ ope separatur et educitur: Ille autem in terræ visceribus, quanquam rarius, jam currens reperitur. Hujus semimetalli elementa nondum satis detecta sunt. Ore assumptus (mercurius vivus) è ventriculo et intestinis nunquam in vasa lactea ac bibula venosa transit, sed denuò per alvum citra singularem formæ mutationem, ac citra ponderis decrementum, excluditur.—Salia acida prompte recepit, et in corpore proinde, præsertim impuro, non tantum propter eminentem ponderositatem suam, valide premendo, verum etiam absorbendo, et postea pariter, quam primum per adhærentes, et arc-tius unitas partes acidas moleculis globosis magna acredo, quin corrosiva

[c] The ores of quicksilver, according to the systematic *Cronsted*, are the following:

- A. Mercurius natus virginicus, found in many parts of Austria on a black slaty lapis ollaris.
- B. Mercurius mineralifatus.

- 1. Mercurius sulphure mineralifatus.

Native cinnabar.

- a. Cinnabaris friabilis.
- b. Minera mercurii indurata
  - 1. Steel grained.
  - 2. Radiated.
  - 3. Small cubes, or scaly.

- 4. Crystallized.

a. In a cubical form transparent and deep red as a ruby.

- 2. Mercurius cupro sulphurato mineralifatus. This is an ore of a blackish grey colour, of a glassy texture and brittle, crackles and splits excessively in the fire. When the quicksilver and sulphur are evaporated, the copper is discovered by its common red opaque colour; and when further forced in the fire with borax, it becomes green and transparent.

“ nonnunquam indoles, conciliatur, fortissimè stimulando, pungendo, et inciendo, operationem suam exercet. Virtus anthelmintica satis incerta est.” Vid. *J. Fred. Cartheuser. Fundament. M. M. (Paris 1752. in 12mo. 2 vol.)* vol. ii. p. 619—621. But this is a very lame and faulty account of this useful mineral, shewing that the author knew very little about it.

## S E C T. II.

Mercury by its weight,—by the subtilty and figure of its parts,—and by the nauseous, styptic, acrid and metallic property, which it acquires by motion, greatly increases the action of the solids, and consequently attrition. Hence it heats, attenuates the juices, dissolves some præternatural concretions, opens obstructions, and promotes the secretions and excretions so powerfully, that in consequence thereof fluids are sometimes entirely evacuated, in form of a putrid serum by the salivary glands, &c.

When used internally it gently opens the belly, cleanses and heals excoriations and sores in the intestines, kills worms and all sorts of vermin; and is of great use in diseases of the glands, scrophulæ, lues venerea, and wherever great alterations of the constitution are necessary. Externally used, it dissolves tumors, cleanses ulcers, and cures many diseases of the skin, through which it easily passes.

“ Interne mundificat sanguinem ab inquinamento præcipue venereo : fugat lumbricos, difficilem promovit partum, &c. Externe inunctus sanat scabiem omnis generis, fugat pediculos, resolvit duros tumores. De collo suspensis preservat a peste, et ut nonnulli volunt ab incantatione fascinationeque. Imo nulla res in officinis est si antimonium excipias, ex qua major medicamentorum supellex elici possit, quam ex mercurio. Suppediat enim purgantia, sudorifera, mundificantia vulnera, acrimoniam (præcipue in gonorrhœa) lenientia. Intrinsecus tamen rarius adhibetur, extrinsecus sæpius. Intrinsecus in pilulis, e. g. barbarossæ, &c. exhibendus est convenientius, quam in alia forma, ne dentes, quibus noxius est, tangat. Usus externus est in unguentis et emplastris.—Sed cave ne nimium adhibeas. Etenim cum salivatione oris putredinem inducit, loco quocunque applicatus. Præparationes sunt purgatio, calcinatio, et præcipitatio, sublimatio, distillatio, extractio, liquatio, falsificatio.” *Schrod. p. 403—423.*

1. When crude it has neither taste nor smell, and is indissolvable in our bodies. Though prepared and taken to any considerable quantity, so as to bring on a flux of saliva, or to cause a nausea, its mineral or brassy taste is observable enough. Is it not therefore naturæ stypticæ? And has it that taste in the mouth, when salivation is raised by unction?—2. It is not acrid, nor so escharotic as alum: for it has not only long stagnated in the bones, and even fleshy parts also, without any marks of corrosion; but also has been taken inwardly for several days, even by children, without any bad effect. “ Si bibatur argentum vivum id non facit quod facit unctum. Vidi mulieres qui libras ejus biberunt, ut abortum facerent, et sine noxa. Ego exhibeo in vermibus puerorum, et nullum parit symptoma, solum necantur vermes.

“ Ex



“ Ex hoc credatis, quod est occulta, intima vis, et facultas hujus medica-  
 “ menti.” *Falloppius* (*Opera omnia, Francoforti, 1600, in folio.*) *De Morbo Gal-*  
*lico.* p. 728.—“ Not only have I seen two ounces of it given every day for  
 “ twenty-one days together, without any inconvenience; but found once  
 “ some quantity of it in the perinæum of a subject taken from the gallows  
 “ for dissection, whose rotten bones discovered what disease required the use  
 “ of it, and that I suppose by unction, without any marks of corrosion of the  
 “ part where it was collected.” *Mead of poisons, (3d edit.)* p. 193.—3. It  
 kills insects, ut pediculos, lumbricos, &c. But whether the water in which  
 quicksilver is boiled will have this effect, or cure the itch, as some assert, (Vid.  
*Hoffm. in Schrod.*) and others deny, I cannot determine. This also has been  
 given for worms; but I don't see how water can extract any thing from it. [d]

Quicksilver does not kill larger animals. *Falloppius* say in his country it is  
 given commonly to calves to kill worms, without any bad effect. Vid. *Fallop.*  
*de Fissilibus.* p. 347.—4. Externally applied, it powerfully discusses tumors,  
 cleanses, dries, and heals the itch, scabs, ulcers, &c.—Is it properly a repel-  
 lent? or does it act here as a styptic? Is it as dangerous as sulphur in dis-  
 eases of the skin? *Ans.* If it enter the pores or absorbent vessels of the skin  
 (which it easily does) in sufficient quantity, it has the same effects as when it  
 enters the lacteals; and from cold, or other mismanagement, may prove  
 very dangerous, and often fatal.—“ Fabri aurarii a solius hydrargyri vapore,  
 “ frequentes sudores frigidos, lypothymias, convulsiones, lassitudines, tre-  
 “ mores, ptyalismos sibi contrahunt.” *Ephem. Germ.* dec. 1. an. 1. obs. 81.—  
*Fernelius de Lue Vener.* (p. 590.) tells us of a goldsmith who imprudently ex-  
 posing himself, twice or thrice at most, to the vapour of quicksilver, became  
 stupid, lethargic, and quite dumb. Many observations there are in authors  
 of the miserable effects of mercury on such as handle or work in it much, or  
 are much exposed to its fumes; as palsies, apoplexies, epilepsies, carious  
 bones, hectic fevers, &c. Vid. *Fred. Hoffm. de Metallurg. Morbifera.* p. 25.  
 “ Rari admodum sunt fossiores, et hujusce materiæ artifices, tametsi robusti-  
 “ tissimi fuerint temperamenti, qui eo in opere, ad quartum usque annum, in-  
 “ columnes perdurare valeant; quippe partium omnium tremore concutiu-  
 “ tur.” *Math.* p. 936. And, 5. When it is by any means lodged in the  
 body, it dissolves the fluids into a putrid serum, whereby, according as it is  
 managed, it is disposed to be evacuated, either by the skin, urine, or stool,  
 but most safely by the salivary glands (because more equably and slowly

[d] An ounce of quicksilver being boiled with one pound of distilled water for fifteen minutes, it became impregnated with the brassy taste of the mercury; but on adding alkaline salts, either fixed or volatile, there was no chemical proof of any solution: the diminution of the weight of the mercury was hardly perceptible.

The water being allowed to stand for 24 hours, and afterwards filtrated, it lost its mercurial taste entirely, and a very small quantity of

a greyish powder, not weighing two grains, adhered to the sides of the phial, and which communicated a white colour to gold.

This experiment proves that mercury does yield an impregnation to water, not however as a menstruum, but that the agitation of boiling, together with the heat employed, converts a small quantity of it into this powdery and active form. Vid. *Appendix to Plenk, on the use of mercury.*

thus than any other way). [c] And thus all the juices of the body may be renewed in a manner in a few weeks time. But if the corrupted fluids are not evacuated, and their place supplied by such as are sound and wholesome, it is not to be wondered at if the very worst of symptoms be brought on, and the most fatal consequences follow. Hence cold is so dangerous in a salivation. *N.B.* It is more safely taken by the mouth, because thus it is more certain what quantity is lodged in the body.

We have nothing of quicksilver but its noxæ in *Dioscorides*, *Pliny*, and *Galen*: and the last seems to have known the least of it; for he says, “*Hydrargyrum non est ex sponte nascentibus medicamentis, sed ex iis quæ præparantur, velut psimythium, ærugo, psoricum, lithargyrum. Nullum au-*

[c] Such is the tendency which mercury shews to affect the salivary glands, and such is its power of exciting salivation, that it was formerly the opinion of many practitioners, that this evacuation was necessary for the cure of the venereal disease: however, a more thorough acquaintance with the nature of this disease, and the management of a mercurial regimen, affords us sufficient authority for asserting, that salivation, so far from being attended with any advantage, constantly retards a cure, and subjects the patient to many inconveniencies.

Mercury seems to operate as an antidote or specific in the cure of the venereal disease, and it is necessary it should be intimately blended with our fluids, and circulate with them for some length of time to conquer the virulency of the disease; the alterative course is therefore what is found the most successful.

In a mercurial salivation the mercury is very thoroughly and copiously blended with our fluids; but that it is generally discharged out of the body on the first days, appears from this, that a piece of gold held in the mouth then becomes white, though afterwards, unless a fresh quantity of mercury be swallowed, the saliva has no such effect; a sure proof that all the mercury is evacuated from the system.

This seems to me to be the reason why many by repeated salivation have not been cured of the venereal disease, especially those who had a salivation soon excited in them after the second or third anointing, by which the mercury was too soon evacuated out of the body.

Besides, a salivation is very *inconvenient*, is *dangerous*, does not give a *certain cure*, is not *critical*, nor can it be excited in every subject, nor is it necessary in any.

All this may be demonstrated in the following manner.

The inconveniencies arising from it appear evident, when we consider the tediousness of the application of the unction, the inflammation of the throat that frequently attends it,

the fever that is always present, a necessary abstinence from almost all kinds of food, an uninterrupted discharge of saliva for six or more weeks, a continual fear of suffocation on the least exposure to cold, troublesome exulcerations of the throat, a sinking breath, and finally the body emaciated after the cure. I shall say nothing of the consequences arising from a constant confinement at home, from the putrid atmosphere that surrounds him in his chamber, and besides of his being deprived of the company of his friends.

Salivation is likewise a dangerous practice. *Astruc* has told us, that there frequently supervene violent fevers, diarrhoea, dysentery, hæmoptoe, an immobility of the jaws, and likewise a suffocation, and that too when the salivation has been most properly conducted.

That salivation is not a certain method of cure appears from this, that there are many instances of patients, whose venereal complaints have returned after a first and second salivation had been properly conducted. Besides, *Astruc* himself very candidly acknowledges, that neither gonorrhœas, condylomata, fistuli, or pains in the bones, exostosis, scirrhus, caries, rhagades, obstinate ulcers, herpes, lichen, gummata, or cancers, can be cured by a salivation, although most skilfully managed.

Nor is salivation a critical discharge; for we have no observation to prove, that a salivation coming of its own accord ever cured the venereal disease. Besides, there are many observations which prove, that those affected with the venereal disease, have been radically cured without any salivation whatsoever. And the most healthy person by taking mercury, will have that fætor in his saliva which attends salivation in the venereal disease.

Nor is salivation necessary for the cure of the venereal disease; for there are many examples of people who have been violently poxed, and yet have been thoroughly cured without salivation. *Plenck on Mercury.*



“tem ejus feci periculum, neque quod interimat si devoretur, neque ubi  
 “foris admota sit.” *De Simpl.* l. 9. p. 71. “Ferro, lapidique ignito, ea quæ  
 “per erosionem interimunt medicamenta similia sunt: velut chalcitis, misy,  
 “sory, ad hæc arsenicum, hydrargyrus, lithargyrus et alia innumera. Craf-  
 “sarum enim sunt partium, id genus omnia ac potestate calida; ac proinde  
 “temporis spatio accensa, per eam quæ est in animante mutationem, non  
 “aliter quam lapis ferrumque ignitum, ventrem tum exulcerant, tum ex-  
 “urunt.” l. c. 4. c. 9. p. 30.

But *Paulus* mentions an internal use of it. “Hydrargyrus ad medicum  
 “usum, non ita valde assumitur, quum venenum existat. Verum quid est  
 “ustum ipsum ac in cinerem redactum, aliisque speciebus permixtum colicis,  
 “et volvulosis bibendum dederunt.” l. 7. p. 644. How it was calcined I  
 know not. *Riverius* used it sulphure extinctus. *Obs. Commun.* obs. 1. p. 561.

The Arabians first gave the hint, that it is not a poison inwardly taken.  
 “Argentum quidem vivum plurimi (Dr. Mead has *plurimum* for *plurimi*. Vid.  
 “*on poisons*, p. 191.) qui bibunt, non læduntur eo. Egreditur enim cum  
 “dispositione sua per inferiorem regionem.” *Avicen.* l. 4. fon. 6. tract 1. p.  
 491. D: and they used it so, as well as much externally in unctions, whereby  
 its true nature and uses were discovered, to the great improvement of  
 medicine.

“As to mercury, says Dr. *Freind*, it was without dispute owing to chance,  
 “that they knew it would cure the pox by fluxing. But that it had this  
 “power was discovered long before the end of the 15th century. For be-  
 “sides what *Guido* wrote, 1363, it is plain, that the property of mercury,  
 “and even by the way of unction, was known to *Theodorick* in the 13th cen-  
 “tury, who describes several forms of such ointments, lays down the rules  
 “how often and how long the unction should be continued, till the flux  
 “rises; orders the patient to avoid catching cold during the course, and not  
 “to wash in forty days. The humour, he says, will flow from the mouth  
 “like a river; and this method he knows to be certainly attended with suc-  
 “cess in the malum mortuum, (*i. e.* scabies cum livore & nigredine) and  
 “scabies. These mercurial applications were evidently taken from the Ara-  
 “bians, and by reasoning from a like illness, such as the itch, morphew, or  
 “leprosy, were applied happily to the pox.—*Theodorick* was a *Friar*, and  
 “afterwards *Bishop of Cervia*, and died about the year 1270 or 80.—*Rhazes*,  
 “*Avicenna*, &c. prescribe such external medicines, though without any view  
 “or apprehension of fluxing in these cutaneous affections. However, *Alfa-*  
 “*haravius*, or *Allucacis*, (who died circa 1180.) seems to have had some  
 “notion of this effect; for he treats of the cure, when the mouth, the tongue,  
 “and especially the throat, was swelled, attended with corrosion, and great  
 “stinking, from mercurial unctions, a case which he had seen himself very  
 “often.—In 1516, *Jo. Almenar*, a *Spaniard*, published a short *Traët. de Mor-*  
 “*bo Gallico*, in which he seems to recommend mercury as the Arabians used  
 “it; but not to promote a salivation, for when it appears, he is for diverting  
 “the humours by medicines into the lower parts.—In 1518, *Jo. de Vigo*, a  
 “*Genoesè*, wrote something of this disease. As to the cure he observes, that  
 “all the old remedies failed: and if the disease be confirmed, there is nothing  
 “to be done but to use mercurial unctions, which by salivation cure it (he  
 “says)

“ says) infallibly in a week.—This is the first instance upon record where the  
 “ practice is recommended. He describes too a mercurial cerote for the same  
 “ intention, which he had experienced a thousand times, and is the easier for  
 “ the patient, more secure in its operation, and in the end as effectual. But  
 “ *Jacobus Carpus*, or *Ja. Berengarius*, is supposed to be the first who was  
 “ master of this secret, (floruit circa 1522, Lind.) grew rich by it, left 40 or  
 “ 50,000 crowns to the *Duke of Ferrara*, and much plate; and from him  
 “ perhaps *Vigo* learned it. — II. *Fracastorius*, (qui obiit 1553,) in his *Syphilis*,  
 “ besides mercurial unctions, mentions fumigations with cinnabar, but  
 “ seems to be afraid of them.” Vid. *Freind's History*, ii. p. 360—365.

*Paracelsus* was probably the first who gave mercurial preparations inwardly.  
 He died anno 1541.—The conciliator *Petrus de Apono* gives the history of a  
 druggist killed by drinking quicksilver by a mistake. This is quoted by  
*Matthioli*, p. 999; though *Fallopius*, p. 346, calls it mendacium, and p. 347  
 gives the opinions of the learned about the primary qualities or temperament  
 of mercury. “ Unde (says he) tot fere de qualitatibus manifestis argenti  
 “ viv. sunt sententiæ, quot etiam auctores.” Obiit *Fallopius* anno Chr.  
 1563, ætatis 73.

That quicksilver is almost indestructible, as well as unproducible by art  
 from metals, &c. seems evident from *H. Boerhaave's* experiments, *Phil.*  
*Transf.* No. 430. p. 145. and No. 443. p. 343. “ Cum sale marino facilli-  
 “ me consociatur, et simul conjuncta, facillime in massam candidam, salinam  
 “ crystallinam, levi colore, sublimantur, sub nomine mercurii sublimati corro-  
 “ sivi, non itidem cum nitro vel vitriolo. A spiritu acido nitri facile dissolvi-  
 “ tur, sed difficillime admodum ab oleo vitrioli.” Vid. *Geoff.* i. p. 249.

## L E C T U R E XIV.

### S E C T. III.

#### O N M E R C U R Y.

**M**ERCURY is given in substance, with various intentions, and in  
 very different quantities, from a grain to a pound. The most usual  
 preparations are 1. *Æthiops mineralis*. 2. *Cinnabaris*. 3. *Mercurius subli-*  
*matus corrosivus*. 4. — *Dulcis*. 5. — *Præcipitatus albus, flavus, fuscus,*  
*ruber, viridis*. It is used also in ointments, plaisters, &c.

Quicksilver may be reduced to a powder by rubbing it well with sugar,  
 honey, oils, rosins, balsams, resinous gums, or even with earthy substances, as  
 crabs-eyes, &c. *e. g.* R *Mercurii crudi* ʒj. *sacchari albi* ʒj. *diu terendo in*  
*mortario vitreo.* F. *pulvis anthelminticus pro una vel pluribus dosibus.* “ *Cru-*  
*dus ad vermes enecandos exhibetur a ʒj. ad ʒj.—In ileo ad ℥ij. vel iij.*”  
*Geoff.* i. 254. Large doses! The *pil. mercuriales*, *Pharm. Edinb.* edit. 1735,  
 composed ex *arg. viv. et gum. guaiac. ana p. æq.* with balsam. *capivi q. s.*  
 were too resinous; and therefore those of *Ed.* 1744 were made ex *argent.*  
*viv. ʒj.* properly divided with honey, and mixed with gum ammoniac ʒij. by



the continued use of which a salivation may be excited. Mr. *Geoffroy's* pil. mercuriales præstantissimæ M. M. i. p. 255. in which are agaric, colocynth. and scammony, in quantity nearly equal to the quicksilver, are too acrid and cathartic to owe any part of their virtues to the quicksilver. Nor are these of the *New Lond. Pharmac.* much better. We have also a mercurius saccharatus. — Cannot we with equal certainty salivate by the use of any of these, as by the mercurius dulcis? “ Experience has convinced us, that repeated doses of crude mercury have in some cases, even a considerable time after they have been taken, exerted their force, and thrown the body into unexpected disorders. I remember two accidents of this kind, (one of them proved fatal) in which when small quantities had been given for many days together, a violent salivation ensued, more than two months after the use of it had been left off. And not long since, I saw a young lady, who having swallowed about ʒvi. every morning, three successive days, was salivated three weeks. The flux then ceased, but returned after six months, and held a month; and once more came on in the same manner two months after. The breath was each time strongly affected, as is usual in mercurial spittings.” Vid. Dr. *Mead of Poisons*, p. 196. *Cartheuser M. M.* ii. 620. § 3. or *supra*, p. 277.

I shall now examine the most common preparations of quicksilver. And, 1. *Æthiops mineralis*; that is, quicksilver and sulphur ana p. æq. rubbed together in a glass or marble mortar, till they are incorporated into a fine black powder. The flowers of sulphur are ordered to be used; but I do not know that they are preferable to powder'd brimstone. The name *æthiops* was first given to this powder by Sir *Theodore Mayerne*. — There are different ways of preparing it, as may be seen in *Lemery*, (*Chémie*, p. 223—226.) *Riverius* (*Oper. omn.* p. 561.) mentions a *mercurius sulphure extinctus*, but says nothing about the manner of making it.

It is much recommended for the lues venerea, worms, itch, ulcers, scrophulæ, asthma, epilepsy, rheumatism, gout, &c. I think it useful only as it promotes the expulsion of vitiated humours, or crudities in the primæ viæ, heals excoriations there, and perhaps carries off worms. It commonly opens the belly, and so may be of use in the hæmorrhoids: but brimstone is as effectual; to which it seems to owe its virtues, more than to the mercury, which is so fixed by it as seldom if ever to enter the lacteals.

For, 1. It rarely salivates, and I believe never if sufficiently prepared, (that is, if all the mercury be thoroughly incorporated with the sulphur) it having been taken to ʒj. or ij. every day for months together, without producing any of the effects of mercury in the body, and that many times. — 2. It is dissolvable in none of our fluids. — 3. It is visible in the fæces alvinæ, retaining its proper colour. — 4. I knew it once produce the same symptoms which at first affect the miners; not having been, as I judged, sufficiently rubbed, and the patient not kept warm. I ordered it once to a child, who had been long troubled with a diarrhœa and vomiting, and had taken many medicines to no purpose; and she immediately recovered, without passing any worms: but whether the cure was to be ascribed to it or not, I cannot tell. There being here much more sulphur than the mercury requires, the surplus may be at liberty to act according to its nature. It always smells like brimstone.—

*Boerhaave* (*Chem.* ii. p. 492.) directs it to be made with fl. ſulph. p. i. & merc. viv. p. 3.

Our college *Phar.* edit. 1722, adopted *Bates's* pil. *Æthiopicæ*, ( “ D. ad “ *Ἰij.* bis in die ad dies 40 vel 50 continuos, in hydrope, ſcorbuto, lue venerea,” &c. *B. Pb.* p. 114.) changing the extract. ſarſæ for baſſ. capivi; by which alteration it became more indiffoluble. In edit. 1735 the antihect. poterii, which was before uſed inſtead of *Bates's* ceruſſa antimonii, was thrown out, and ſulph. aurat. antimonii put in its place, and the reſina guaiaci was doubled: thus they were made ſtill more reſinous and fixed. At length old *æthiops* itſelf was thrown out with the other ingredients, except the reſina guaiaci, and a new pill. with the former name inſerted in the edit. 1744 thus: “ R argenti vivi, ſulphur. aurat. antimonii et reſinæ guaiaci ana ꝑ̄ſſ. Tere ſimul in mortario vitreo ad perfectam globulorum extinctionem, dein adde ſaponis Hiſpani ꝑ̄ſſ. ſyrupi baſam. q. ſ. ut f. maſſa pilularum.” But what effects theſe have I know not: I ſhould have expected more from them if calomel had ſupplied the place of argentum vivum. (See *Med. Eſſays*, vol. i. art. 6.) However, according to the *New Diſpenſatory*, (p. 467,) “ they are “ preferable to Dr. *Plummer's* pills in this reſpect, that they are leſs apt to “ run off by ſtool,” the reſina guaiaci being a ſtrong cathartic.

2. *Cinnabaris* is mercury and ſulphur united more intimately by a natural or artificial ſublimation. Or it is *æthiops* ſublimed *natura vel arte*; there being a native as well as a factitious cinnabar.

*Cinnabaris nativa offic.* minium purum, ſeu cinnabaris nativa. *Worm. Muſ.* 126. *Cinnabaris, Matthiol.* 933. *Cinnabaris nativa, Dale* 31. *C. nativa, ſeu foſſilis, Geoff.* i. 245.

Native cinnabar is a hard, heavy, red metallic mineral, ſmelling like ſulphur, “ et fracta ſtrias parallelas conſpectui exhibens.” *Cramer*, vol. i. p. 321. Or it is the pureſt minera argenti vivi, found in mines. — In 1721 it ſold in Holland at guld. 15, when the quickſilver was at guld. 2½ per pound. De cinnabari nativa triplici antiquorum ſee *G. Fallop. de Feſſil.* c. 36. p. 341. “ Variis in locis reperitur, in Hungaria, in Carinthia, in Bohemia, in Italia, in Hiſpania, et in Gallia.” *Geoff.* i. 245.

Some prefer for medical uſes the Hungarian; but that which is heaviest and of the fineſt red colour is freeſt from any heterogeneous mixture, and is conſequently beſt. “ Vermilion is cinnabar levigated with wine and brandy. “ It becomes more beautiful if gum gutta-water with a little ſaffron be added. “ Mercurii p. iii. ſulphuris p. ii. ſalis ammoniaci p. i. mixed and ſublimed, “ produce a cinnabar of a fine blue colour.” (Vid. *Savary's Diet.* i. 760.) This blue cinnabar has ſalis ammon, p. ii. in the *Codex Medicam.* (p. 217.) and is called mercurius violaceus.—In all native cinnabar there is at leaſt p. vi. argenti vivi for p. i. ſulphuris. *Cramer.* i. 231. But cinnabaris Carinth. optimæ ꝑ̄xvi. give argenti vivi ꝑ̄xiii. (or, according to *Savary*, ꝑ̄xiv.) And cinnabar. fact. ꝑ̄xvi. give of quickſilver ꝑ̄xiv. as *Savary* ſays, (*Diet.* p. 151.) or ꝑ̄xiii. according to *Lemery*, (*Chym.* p. 211.) So that the native cinnabar probably contains ſomething elſe than brimſtone; though, according to *Cartheuser*, (*Fund. M. M.* 621.) there is ſulphur p. i. in cinnab. nativ. p. viii. or ix.—*Lemery* ſays, Cinnabar fact. lbj. and calcis vivæ lbij. well mixed and diſtilled, yield ꝑ̄xiii. of pure quickſilver, there remaining in the retort lbij. ꝑ̄ſſ. (Is the



the  $\text{z}\beta$ . all acid? And what becomes of the  $\text{z}\text{ij}\beta$ . sulphuris?) But  $\text{lb i}$ . cinnabaris revived with an equal quantity of iron gives  $\text{z}\text{xij}$ . of quicksilver, there remaining in the retort  $\text{z}\text{xix}$ .  $\text{z}\text{ij}$ . so here evaporated only  $\text{z}\text{ij}$ . sulphur; but in the former  $\text{z}\text{ij}\beta$ . (Vide *Lem. Chym.* p. 210, &c. — It may be revived also with fixed salts, as well as nat. cinnab. which is not always equally pure.

One part of sulphur melted and cautiously mixed with argent. viv. p. iij. and then sublimed affords the factitious cinnabar; which has more of the silver-colour than the native, is commonly in smaller bits, and of a more beautiful red when powdered. The proportions may be altered, and the product the same. (Vide *Boerb Chem.* ii. 493. and *Lem. Chym.* p. 208. *Geoff.* i. p. 258.): the mercury taking-up no more of the sulphur than suffices to make the cinnabar. (Vide *Pharmacop. Lond. Newman* on the subject of factitious cinnabar. Vol. tinct. of sulphur.)—Factitious cinnabar has the virtues of the *Æthiops* and no other: it is therefore a useless preparation in medicine. The native, if absolutely pure, is of the same nature; if not, it may have very different effects: so that I dare affirm nothing concerning it. All the cinnabars are used in painting.—However much the native cinnabar was of late used, and commended at London, it is now excluded the *New Pharmacopæia*: but it is still famous in France, Germany, &c. and esteemed the basis of the *Pulvis Dresdensis*. *Cod. Med.* p. 62. which is,  $\text{R}$  Cinnabar. nativæ  $\text{z}\text{j}$ , cinnabar antimon.  $\text{z}\beta$ . ambr. ciner. & olei cinnamomi  $\text{āā}$   $\text{z}\text{j}$ , sacchar. candi  $\text{z}\text{ij}$ . f. pulv. though its virtues depend on the ambergris and ol. cinnamom. Vide cinnamomum *infra*.—In one edit. (1748.) cinnabar fact. is used alone without the native. The *Tonquinese* medicine is as follows:  $\text{R}$  Moschi opt. gr. xvi. cinnabar. nativ. & vermilion  $\text{āā}$  gr. xxiv. seperatim in pulv. subtilissimum trita m. and give it in a gill of arrack. It is the Chinese infallible cure for the bite of a mad dog, according to *Alex. Reid*, Esq. Vide *Phil. Trans.* No. 474. p. 225. where are also ten cases in which it, or musk, was given in the goat distemper, small-pox, delirious fevers, hysterical convulsions (which its smell relieved), and maniacal distempers; in most successfully, and in all without any bad effect, though the musk was sometimes given to  $\text{z}\text{j}$ .—*Cartbeuser* (*M. M.* ii. p. 622, 634.) has fully demonstrated the indissolubility, and consequently inactivity of cinnabar when taken in substance. The sulphur, he says, is only a shell to the mercurial globules.

“ Usus cinnabaris nativæ internus, præterquam quod antiepilepticis, nonnunquam permixta deprehenditur, quod sciam nullus est. Extrinsecus adhiberi potest ad sanandam luen veneream, scabiemque in suffimentis.” *Schroder.* p. 423.

“ *Sennertus* (c. de Epilepsia) ex cinnabare nativa, a Cratone tanquam epilepsiae magneti laudata, pulverem antiepilepticum præscribit. At cum ipsum Cratonem consulimus, nusquam hæc reperimus. In consiliis & epistolis varia medicamenta contra epilepsiam recenset, sed hujus ne verbo quidem mentionem facit. *Epist.* 137. de cinnabaris nativæ vi magnetica adversus epilepsiam valde dubitat. *Epist.* 168. pulveres ex hac confatos plane rejicit; & procul dubio ex mente *Eraſti*, qui *Epist.* 271. ad *Monavium* mercurium, & alia ex metallis preparata, non temere adhibenda suavit. Et licet cinnabaris hæc assumpta ventriculi digestionem, minime pareat, neque in corporis nostri oeconomiam recepti possit, tamen adsumpta quamdiu hæret

“ in

“ in stomacho, ARCHEUM nostrum alterando, varie mireque afficit.” Vide *Hoffman. in Schrod. Magnet.* 279, where the arguments of *Crato*, *Fernelius*, &c. against the internal use of cinnabar are answered, and his reasons given why he prefers the native to the factitious cinnabar. viz. “ Sæpe, ut fiat rutilantior, adjecto arsenico præparatur.” Dr. *Quincy* (*Pharm.* p. 142.) says, “ It is extremely safe and may be given in considerable doses, without any danger, or tendency to a salivation; and is commended for worms; and in plaisters with olibanum, applied to the stomach and wrists for agues.” He says also, “ It is in great account with some in nervous cases, and particularly epilepsies, in which it was a prodigious favourite with *Crato*.” — “ Est anodyna, attenuans, diaphoretica, anthelmintica, & antispasmodica. Valet præcipue in epilepsia, hysterica passione, vertigine, cephalalgia, palpitatione cordis, cardialgia, colica, asthmate, arthritide, rheumatismo; in febribus, scurbuto, lue venerea, ulceribus, & affectibus cutaneis pruriginosis.” *Nucl. Belg.* p. 80. It is certainly equally useful or useless in all these diseases.

“ Accidit nonnunquam quod cinnabaris nativa, ratione vitriolicarum quarundam particularum, vel etiam fortasse arsenicalium, nauseas & vomitiones excitet, necnon etiam anxietates circa præcordia: quod & ipse bis terve observavi, licet cinnabaris plurimis lotionibus purgata fuisset. Quapropter, aut cinnabarim factitiam, aut cinnabarim antimonii nativæ semper antepotendam censeo.” *Geoff.* i. p. 246.

In *Phil. Transf.* No. 459, there is an account of a gentleman, who by Drs. *Hartley's* and *Shaw's* order had taken cinnabar antimon. thrice a day, for five or six days, without one stool; so that he had a clyster given which brought away all the medicine without the least alteration. How-much-soever therefore the cinnabars are recommended, it is well if they do no hurt.—If pure, they may be given in large doses (though gr. x. or xij. are seldom exceeded) like the *Æthiops mineralis*, with which they both agree in virtues; but with this difference, that in the cinnabars all the mercury is necessarily fixed, as is probably also the whole sulphur; so that neither of them act according to their own nature, but all their effects depend on the mixture.

## L E C T U R E X V.

### ON M E R C U R Y.

3. **M**ERCURIUS sublimatus corrosivus, *offic.* is quicksilver dissolved in aq. fortis, then evaporated to dryness, and with an equal quantity of decrepitated sea-salt and of green vitriol calcined to whiteness, sublimed into a solid, heavy, corrosive white crystalline mass; which is a real vitriolum mercurii, “cujus sapor terribilis austerus.” Vide *Boerb. Chim.* ii. 488. and *Mag. Chym.* i. a p. 290 ad 296.

“ Argenti vivi indolem, & vires singulas qui scrutari & explorare conaretur, totum illi vitæ curriculum haud suffecturum esse putarem; tanta unci hujus subjecti mirabilis & pene imperscrutabilis est natura. Chémici fere omnes ab omni ævo illud vocarunt semen & materiam omnium metallorum communem.”



“munem. Hodie vero alii contendunt, mercurium, ad metallorum mixtionem & consistentiam adipiscendam omnium mineralium esse ineptissimum. Hoc certe verum est arg. viv. per innumeros processus chemicos, a tot tantisque artificibus, tortum & vexatum, semper mansisse A. V.; omnesque artes humanas in hunc usque diem eludens, suam constanter naturam retinuisse immutabilem.” &c. *Excerpt. è var. autor.*

Mr. *Boulduc* prefers the solution of the mercury in ol. vitrioli to that in aq. fortis. Vide *Mem. Acad. R.* 1730. p. 50. The last *Pharm. Lond.* has a new and apparently singular, not to say immethodical, process, p. 59. Whether it be better than the common I know not; but if no corrosive sublimate be made at London (as I have heard of late there is not) it is to be suspected. It is said that this preparation of mercury is easily adulterated with arsenic, and the fraud difficultly discovered. Some, indeed, pretend that this sophisticated corrosive turns black with spirit. salis ammoniac; but Mr. *Lemery* says, that even the mercurius dulcis, however genuine, moistened with that volatile spirit grows black, and is of a dirty-brown colour when dried. Vide *Chym.* p. 247.—“*Boulduc* denies that they will change either the genuine or adulterated to this colour. And arsenic, as *Newman* observes, will not rise in sublimation along with this mercurial preparation, therefore cannot be mixed with it afterwards without destroying the form in which it is brought to us;” which is from Venice and Holland. (Vide *New Dispensatory*, p. 336.)—*Infida chemicorum fides!* According to *M. Macquer*, mercury is a proper medium for separating sulphur from arsenic, with which, he says, it cannot by any means be united. Vide *Ch. Pract.* i. a p. 412. ad 417. That the corrosive sublimate be rightly prepared is of the utmost consequence, and I hope to see it done here very soon. Vide *Lewis, Ph.* p. 320.

Mercury  $\text{℥xvj.}$  as dissolved in the nitrous acid, sublimed with salt and calcined vitriol  $\text{āā ℥xvj.}$  gave sublimati  $\text{℥xix.}$  (though the dried calx mercurii was  $\text{℥xxij.}$ ) and there remained in the matras, of the salt and vitriol  $\text{℥xxvij.}$  Vide *Lem. Chym.* 228, 240. which corrosivi  $\text{℥xix.}$  therefore contain acidi marini  $\text{℥ij,}$  if there is no augmentation of weight from the fire. “The action or play of mineral acids, (*Le jeu des acides minéraux,*) is remarkable in this process. Here are all the three neutralised, or bound by a different base; the vitriolic is united to iron, the nitrous to mercury, and the marine to its own alkali. The vitriolic and nitrous acids, which are united to metallic substances, being stronger in attraction than the marine, tend to separate it from its base, with which they have a greater affinity, and combine with it: but the vitriolic acid being the strongest of the two, ought or would possess it solely, to the exclusion of the other, which would remain united to the mercury, if the marine acid had not a greater affinity with that metallic substance. This marine acid, separated from its base by the vitriolic acid, and become free, ought then to join itself to the mercury, and separate from it the nitrous acid; to which the only resource remaining is to join itself to the iron, abandoned by the vitriolic acid. But as these changes are made by the help of a pretty strong heat, and the nitrous acid has not a great cohesion with the iron, it is carried away by the action of the fire; and is what is seen to rise in vapours, during the operation. There are raised with it also some parts of the two other acids, but in small quantity. So  
“that

“ that after the operation there remains, 1. A combination of the vitriolic acid, with the base of sea-salt, *i. e.* a Glauber's salt. 2. A red terra martialis, which was the basis of the vitriol: these two substances blended together, remain in the bottom of the vessel, by reason of their fixity. 3. A combination of the marine acid with the mercury, which being both volatile sublime together to the upper part of the vessel, and form the corrosive sublimate.” Thus *Macq. Chym. Pract.* i. p. 291.

Now, since thus, as well as by the analysis, it appears that corrosive sublimate consists of nothing but mercury united to the marine acid, it is evident, that it may be prepared of these two without the assistance of either the vitriolic or nitrous acid, if the affinities of the different substances be well considered, and their action on one another as discovered in the above process: and our author shews, 1. That the nitrous acid may be omitted, and corrosive sublimate be made of vitriol sea-salt and mercury. 2. That vitriol may also be omitted when the mercury is dissolved in the nitrous acid: the nitrous acid having a greater affinity with the basis of the marine acid, than the acid of that salt; which has a greater affinity with mercury than the nitrous acid. 3. That for sea-salt its spirit may be used, which mixed with a solution of mercury in the spirit of nitre must separate the nitrous acid, and take its place; forming a white precipitate, which needs only to be sublimed to become corrosive sublimate. 4. That instead of employing mercury dissolved in spirit of nitre, mercury dissolved in the acid of vitriol, or turpeth may be used: the marine and mercurial-vitriolic salts, by reason of their affinities reciprocally decomposing one another, and so forming our sublimate corrosive. All these ways, however, excepting the last, invented by M. *Boulduc*, have some inconveniencies attending them; and therefore neither of them are now used.

He adds also that corr. sublim. may be made by mixing mercury with sea-salt, without any addition; which may appear surprising, as acids have more affinity with alkalines than with metallic substances, and therefore the marine acid ought not to quit its basis to unite itself to the mercury. But I refer you to the author for the explanation of this. [f]

This is a most violent caustic; and as such only was used till lately for shankers, phagedænic ulcers, spongy excrescencies, &c. A solution of ʒj. of it in ʒiv. of water acted very strongly: this was diluted as occasion required. The *aqua phagedænica offic.* (in which ʒß. m. c. is dissolved in ℥j. aq. calcis) is very mild; not only as being much diluted, but as a great part of the sublimate is precipitated by the lime into a yellow powder, or sort of turpethum

[f] *Lemery* has observed, that if one part of quicksilver be triturerated with two of common salt, and submitted to sublimation, a corrosive sublimate is obtained. In this *Lemery* is right; but the conclusion to which it might lead is erroneous, viz. that mercury attracts the alkali more strongly than the muriatic acid does; for it appears from the experiments of M. *Baume*,

that a perfectly pure common salt, prepared by muriatic acid and fossil a'kali, is not decomposed by mercury; it is only the magnesia, which is always in the composition of our more impure salt, that allows its acid to be separated, and from which a corrosive sublimate can only be prepared.



minérale. *Qu.* Is it necessary for the intire solution of m. c. in water that sal-ammoniac be added to it. Vide *Lewis Pharm.* [g]

*Boerhaave* indeed formerly mentioned the internal use of this preparation, given to the quantity of one eighth of a grain dissolved in water, as *mira præstans*  
in

[g] Our author is certainly mistaken in having said that sal ammoniac is necessary for the entire solution of the corrosive sublimate. When crude sal ammoniac is dissolved in water, it promotes the power of the water as a menstruum to that degree, that an ounce of water saturated with that salt will dissolve four drachms of corrosive sublimate, while in its unimpregnated state it would only dissolve thirty grains of it. A few drops of spirit of salt added to water, likewise renders it capable of dissolving a larger proportion of corrosive sublimate, and of suspending it more thoroughly.

In the solution of corrosive sublimate distilled water should always be employed, otherwise the calcareous earth, vitriolic acid, and other saline substances so frequent in water, will precipitate the mercury, and by that means disappoint us in the desired effects.

In the hospital at Edinburgh there was prepared some years ago a sublimate corrosive by precipitating mercury by the volatile alkali from a solution of it in the nitrous acid; and after washing this precipitate with water, they dissolved it in muriatic acid, and by evaporation obtained crystals. This is a more active and soluble corrosive than the common, from having more acid in its composition. When a grain of it was dissolved in an ounce of water, thirty drops of it became a dose. An advantage was supposed to arise from employing a more active corrosive, whose dose may be reduced to a smaller bulk. It stimulates more powerfully, and produces more violent evacuations by sweat and urine. However, as mercury seems to act as a specific, the alterative course is on every occasion to be preferred; and such preparations as stimulate much from their acrimony ought on very few occasions to be employed: they are never to be depended on in producing radical cures, from the small quantity of mercury which in that form can be taken into the constitution.

And though they are less apt to salivate than the more mild preparations, yet they stimulate the other secretory organs so powerfully as to hurry on their own evacuation.

Mercury by being united with acids acquires great activity; and preparations more or less corrosive are produced according to the nature of the acid, and the proportion in the combination.

Muriatic acid with mercury, as with most other metals, gives the most corrosive preparation, then the vitriolic, nitrous, and vegetable.

When the muriatic acid is in so small a proportion united, that it does not produce a soluble salt, but corrodes the mercury, as is the case in calomel, then a very mild substance is produced, because the muriatic acid, from its superior attraction, prevents the action of any other menstruum on the mercury.

When an alkaline salt is added to calomel, the acid is entirely separated; and the greyish powder or precipitate produced is found to be the same with what is obtained from mercury by simple triture or by heat, and which may be readily converted into a mercurius calcinatus. Vid. *Appendix to Plenck on Mercury.*

The same muriatic acid, according to the proportion in which it is employed, either increases or lessens the acrimony of mercury. The precipitate from calomel by alkaline salts is a more active medicine than the calomel itself.

Saline preparations are however for the most part rendered milder by whatever abstracts their acid; hence the mercurius corrosivus ruber is less acrid than the solutio mercurii in acido nitro, or calx mercurii, *Ph. Edin.*

Mercurial preparations are rendered milder by having their acid abstracted, either by spirit or by water, but more especially the former, which operates in dulcifying the acid. Hence a solution of corrosive sublimate in brandy is less acrid, and less apt to gripe and stimulate than a solution in water, which affords an advantage in the exhibition of it.

They are rendered milder by being precipitated by alkalies, either fixed or volatile: the only exception to this is in the case of calomel.

The precipitates of mercury from acids are soluble in the vegetable acid, as is likewise mercury when reduced to a powdery form by triture or by heat.

The most soluble precipitate of mercury is that from calomel, as having no acid adhering to it; and when this is triturated with vinegar in a machine of the construction of Count *Lagarais*, the tragea Keiseri is prepared, and which is a much more easy way of doing it, than by triturating crude mercury with the same acid. Vid. *Afruc on Tumours.*

Dr. *Ward's* white drop is a solution of mercury in the nitrous acid, in which there is a large quantity of nitrous ammoniac, which renders the preparation so soluble as to reduce its dose to the bulk of a few drops. Vid. *Page's Publication of Dr. Ward's Medicines.*

*n multis morbis incurabilibus.* But the illustrious *Van-Swieten* has from his own experience now taught us how to use it with safety, and very great advantage, in various cases: In his letters to *Jos. Benvenuti*, M. D. at *Lucca* (dated at *Vienna*, the one 8vo. Martii, the other 12mo. Aprilis) are the following passages,

In the following table the reader is presented with a view of all the preparations of mercury reduced under proper heads.

### QUICKSILVER.

#### A. Crude.

*Hydrargyrum purificatum* E. L.

#### B. in Vapour.

*Mercurius ad fumum* g

#### C. Triturated.

##### a. alone.

*Tragea Keyseri*

##### b. with Honey.

*Pilulae Mercuriales* E. 1744.

##### c. with Balsam.

*Pilulae Mercuriales* L.

*Unguent. caeruleum fortius et mitius* L. E.

*Emplastrum commune cum mercurio* L.

*Mercuriale* E.

*Ceratum Mercuriale* L.

##### d. with Resin.

*Pilulae Mercuriales* E.

*Aethiopicæ* E.

##### e. with Gum.

*Solutio Mercurialis Plenck.*

##### f. with Suet.

*Unguentum Mercuriale* E.

##### g. with Absorbents.

*Mercurius alcalisatus*

##### h. with Sugar.

*Mercurius saccharatus* E.

##### i. with Sulphur.

*Aethiops mineralis* L. E.

*antimonialis* Ph. Paup. E.

#### D. Sublimed with Sulphur.

*Cinnabaris factitia* L.

*antimonii*

#### E. Calcined.

##### a. alone.

*Mercurius calcinatus* L.

*præcipitatus per se*

##### b. with Gold.

*Mercurius præcipitatus solaris* Astruc.

#### F. Rendered saline.

##### a. by Vitriolic Acid.

*Mercurius emeticus flavus* L.

*Mercurius præcipitatus flavus* E.

*Turpethum minerale* E.

##### b. by Nitrous Acid.

*Solutio Mercurii* E.

*Calx Mercurii* E.

##### c. by Muriatic Acid.

*Mercurius sublimatus corrosivus* L. E.

*præcipitatus albus* Boerh.

*Aqua aluminosa* E.

*phagedænica* E.

*Mercurius violaceus diaphoreticus* Astruc.

*Flores ammoniaco Mercuriales*

*Solutio Mercurii per deliquium* Astruc.

##### d. by Vegetable Acid.

*Mercurius tartarificatus*

*Pilulae Keyseri*

#### G. Saline Preparations corrected.

##### a. Rendered mild:

###### aa. by abstracting Acid.

###### aaa. by Calcination.

*Mercurius corrosivus ruber* L.

*calcinatus* E.

*præcipitatus ruber* E.

###### bbb. by Attraction.

###### aaaa. of Water.

*Pulvis Principis Lewis*

###### bbbb. of Alcohol.

*Mercurius corallinus* L.

*Panacea Mercurii* E. 1744.

###### cccc. of Water and Alcohol.

*Arcanum corallinum* Lewis

*Panacea Mercurii rubra* Lewis

###### dddd. of Camphire.

*Pilulae turpetho min.* Ph. Paup. E.

##### ccc. by Attraction and Precipitation.

###### aaaa. of fixed Alkali.

*Mercurius præcipitatus fuscus* E 1744.

###### bbbb. of Volatile Alkali.

*Mercurius præcipitatus albus* E.

###### cccc. of fixed and Vol. Alkali.

*Mercurius præcipitatus albus* L.

*Unguentum e Mercurio præcipitato* L.

###### dddd. of Volatile Alkali and Copper.

*Mercurius præcipitatus viridis*

##### bb. by Addition of Mercury.

*Mercurius sublimatus dulcis* L. E.

*calomelas*

*Aquila Alba*

cc. by



sages, "Mercurii usum magni facio, sed multa hic opus prudentia est imprimis dum crudus datur, vel affricatur cuti. Non omnibus cessisse hæc tentamina scio. Si mercurius sublimatus corrosivus solvatur in spiritu frumenti rectificato hac lege, ut in singulis unciiis spiritus hæreat medium granum, & deinde hujus detur mane ac vespere cochlear adultis, vel ad summum duo cochlearia, potando simul magnam copiam decocti hordei, vel alterius cujuscunque emolientis, mira efficacia observatur in lue venerea, & aliis morbis difficillimis. Trecentos lue laborantes in nosocomium collegi præterito anno, & absque salivatione omnes exiverunt sani, hoc solo remedio usi. Parum argenti vivi, sed efficacissimi reddit, & multa liquidi copia diluti, vidi profuisse quam maxime. Vale & me ama.

"Uusus illius remedii tamdiu protrahitur, quamdiu aliquid de luis symptomatibus superest: tuto sumitur etiam diu. Cancrosum in lingua ulcus curatum vidi, dum per novem menses hoc remedio uteretur puella, & absque noxa ulla. A pinguibus sale vel fumo induratis, lardo imprimis abstinent dum jubeo; juscula, olera mollia, carnes paucas concedo facile. Pisanam hordei cum quarta parte lactis copiosam do, vel aliud quodcunque decoctum emolliens. In nosocomiis cubiculi ambitu continentur: plures curavi qui quotidie per urbem vagabantur. Credo & apud vos similem successum sperari posse, cum in Hispania per decem annos inveteratam luem sic curavit *Archiater Regine viduæ*, cui indicaveram hoc remedium."—Vide *Commentarii de rebus in scientia naturali, & medicina gestis*. (Lipsiæ 1756. 8vo.) vol. v. p. 717. and *London Medical Observations*, vol. i. p. 365, &c.

4. Mercurius dulcis offic. by some draco mitigatus, (as the corr. sublimat. is called draco venenatus,) is mercurius sublimatus corrosivus, diluted with fresh quicksilver, and sweetned by repeated sublimations, till it become insipid. If the sublimation be repeated seven times it becomes what is properly called aquila alba, or calomelas, or calomelanos (which seems more applicable to the Æthiops than to this preparation) and by some mercur. zoticus. The chymists give the name aquila alba to many other substances. "It ought to be perfectly insipid and indissoluble in water." *N. Disp.* p. 338. It is reduced into a crystalline mass, but not so white as the corr. subl. in the following manner.

They commonly take for sublimat. corrosiv. p. iv. & argenti vivi, p. iij. "Mercur. sublimati corrosivi ℥xvj. & argenti vivi ℥xij. which sublimed s. a. "three times give mercurii dulcis ℥xxvj. ℥iv." *Lemer. Chym.* p. 240. Thus each sublimation diminishing the mass ℥℔. in weight, and the scoræ & terræ levis in fundo residuæ weighing only 3vj. there is consequently lost in each sublimation 3ij. *Ibid.* 243. Now supposing there were in corrosivi ℥xvj. acidi ℥i℔ and argenti vivi ℥xii℔, and that the feculencies separated were of the acid, it will be reduced to ℥j. 3vj. And if the evaporation is of the mercury, it will

cc. by Addition of Unguent.  
Unguentum citrinum E.

b. Rendered acrid or kept so.

aa. by redissolving Precipitate.  
Mercurius præcipitatus solutus

bb. by Addition of Acid.

Solutio sublimati cum spir. salis.

cc. by suspending with ammoniacal Salt.

Mercurius corrosivus nitrosus

*Ward's achite Drop.*

Mercurius corrosivus muriaticus.

Vide *Plenck on Mercury*, 2d Edit.

be

be reduced to  $\text{℥xxxiv}$ ,  $\text{ʒvi}$ : and so there will be in this mercurii dulcis  $\text{℥xxxviſſ}$ , argenti viv.  $\text{℥xxxiv}$ ,  $\text{ʒvj}$ , and acidi  $\text{℥j}$ ,  $\text{ʒvj}$ ; that is argenti vivi p. xv. to acidi p. j. which argenti vivi  $\text{℥xxxiv}$ ,  $\text{ʒvj}$ . with the  $\text{ʒvj}$ . lost in subliming, make  $\text{℥xxxviſſ}$ . = q. f. + q. f. in the sublimate taken. Which confirms Mr. *Lemery's* weight. But if what evaporated was acid, there will be acidi  $\text{ʒj}$ . only in mercurii dulcis  $\text{℥xxxviſſ}$ . Vide Antimonii Butyrum *infra*. Is the corrosive dulcified by the separation of the acid thus principally? or by altering or blunting the spiculæ? Vide *N. Disp.* p. 338.

Aquila alba has the virtues of quicksilver, divided as it were into its minima; yet still in a saline form, and so pointed with acid spiculæ. Hence it not only increases the momentum sanguinis & fluidorum circulantium (as is generally believed, though the momentum of many pounds of liquids cannot be much increased by a few grains of this mineral, or any other;) but (chiefly, at least,) by its stimulating power attenuates and dissolves, as a very heavy salt. So that it is of great use wherever mercury is wanted, or costiveness feared after purgatives: for mixed with cathartics, it not only promotes and quickens their operation, but keeps also the belly open for some days. Outwardly it is the safest of the mercurial cosmetics. *Ad multa utilis est*: for it may be called, aperient, diaphoretic, diuretic, cathartic, &c. as well as a fluxing medicine.

The oftener it is sublimed the less it purges, the more easily it enters the lacteals, and so the sooner and more certainly raises a salivation. If in preparing it the proportion of the quicksilver to the corrosive sublimate be diminished, e. g. if argent vivi  $\text{℥x}$ , be taken instead of  $\text{℥xij}$ , it stimulates more by stool, than it would otherways do: but more than  $\text{℥xij}$ . of argent. viv. will not incorporate with corrosiv. sublimat.  $\text{℥xvj}$ . according to *Lemery, Chym.* p. 241. Who says also, if the corrosiv. sublim. be made without vitriol, it will receive, or incorporate with no more than half its own weight of quicksilver; though when made with vitriol, it imbibes three fourths: that it is not so white, but somewhat greenish; and yet it is as much dulcified by the quicksilver it receives, as the common is with a larger quantity, p. 247.

"If you moisten powdered sweet mercury with spirit. volatil. salis ammoniaci, it immediately becomes black, and when dried will be of a dirty brown-colour, which washing will not remove. This volatile salt has no bad effect on the sweet mercury; but on the contrary dulcifies it a little more, and renders it more apt to operate by perspiration." *Ibidem*.

"Mercurius dulcis vulgaris, draco mitigatus, omnes humores noxios, sine perturbatione blande expurgat, unde vel infantibus exhiberi poterit. Dari potest ad  $\text{ʒſs}$ . . . cum purgantibus a gr. viij. ad xv. & plures." *Schrod.* p. 411. "Dosis a gr. vi. ad xxx." *Geoff.* i. 260. It may be given a gr. x. ad gr. xx. though gr. v. or viij. are not commonly exceeded, in pills or bolusses, being first levigated into a most subtile powder, which is called prepared sweet-mercury. Is it more apt to purge and gripe when not sufficiently thus prepared? *Videtur*.

"Argentum vivum extinctum, & sublimatum, vel subtiliatum est malum, nocivum, incisivum, ex quo accidunt accidentia similia accidentibus ejus qui bibit lithargyrium, ex punctura & torsione intestinorum." &c. Vide *Avicen.* l. 4. f. 6. p. 691—200 E. Was this our sublimate? Scarcely.—Mr. *Geoffroy* on the sublimate illustrates nothing; nor explains any thing: he almost



almost copies Schroder only. *Lemery* is much better worth the reading on all the mercurial preparations.

*Panacea mercurii.* “R Calomelanos levigati q. v. sp. vini quadruplum. “Digere in arena per dies 20 vas sæpius agitando. Effundatur spiritus, & “pulvis siccetur.” *Pb. Edin.* p. 180. Although spirit of wine dulcifies sp. falis, and other acid spirits, yet what it does here, and what this is better than the calomel itself, I know not. Perhaps nothing; since nothing is dissolved in the spirit; nothing of the weight of the powder diminished. (Would digestion or boiling in common water do better?) And yet perhaps it is as good as Mr. Geoffroy’s præstantissimum arcanum (which he says may be called *Panacea Ludoviciana*) whereof he gives the long and injudicious process. *M. M.* i. 260. At least Mr. Lemery’s panacea, which is mercurius dulcis sweetened by nine new sublimations, and digested in spirit of wine, is as good as Mr. Geoffroy’s. “Mercurii dulcis ʒlxx. give panacæ mercurialis ʒlxij. The spirit may be “separated by inclination and filtration as well as distillation, as this carries “none of the powder along with it; for after distilling off the spirit the dried “panacea was not in the least diminished in weight. You may also make this “panacea black, by moistning it with sp. falis ammoniaci.” *Lem. Ch.* 251. In the *Paris Dispensatory* the mercur. dulcis is prepared by seven sublimations; which again sublimed eight times more, and digested 15 days in sp. vini, gives their *panacea mercurialis*, p. 223.

## L E C T U R E XVI.

### On M E R C U R Y.

**M***ercurius præcipitatus albus offic.* is crude mercury dissolved in aq. fortis, and precipitated by a solution of sea-salt, and well washed with warm water into an insipid white powder, “quoad aqua omnem acrimoniam deposuerit.” Vide *Pb. Ed.* p. 177. Lemery does not order hot or warm, but fountain water. Boerhaave orders aquam valde calidam, till the water comes off as insipid as before; and then, says he, the pulvis will be fere insipidus. *Chem.* ii. 482. Compare *Boerb. Chem.* Lemery, and *New Dispensatory*, p. 340.

The merc. præcip. albus of the *New London Pharmacopæia* is corr. subl. and sal ammoniac aa p. æ. dissolved in water, and præcipitated by a fixed alkaline salt; then the pulvis præcipitatus ablutus ad perfectam dulcedinem, p. 60. taken from Lemery, *Chym.* 264. “This process here retained is more easily “performed.” *Pembert. Dispensatory*, p. 226. Is the solution of mercury more difficult than its sublimation? But it seems they don’t take the trouble of subliming the corrosive, as I observed above.

The common white precipitate is escharotic but mildly, emetic and purgative, operating chiefly downwards, and is used as a stimulus to cathartics, to forward a flux, &c. dos. à gr. v. ad x. and externally for foul ulcers, scabs, &c.

“Purgat per inferiora & superiora. Dosis a gr. vj. ad xij.” *Schroder, Phar.* 406. “It is used to excite a salivation:—it is a little emetic. Dose from “gr. iv. to xv. It is also mixed with pomatums for tetters and the itch.”

*Lemery,*

*Lemery, Chym.* p. 257. "Interne sumptus, humores per secessum evacuit; nonnunquam vomitum excitat; assiduo usu salivationem provocat. Dosis a gr. iv. ad xv. Extrinsecus cum unguentis & pomatis adhibitus, omnes cutaneos affectus sanat." *Geoff.* i. p. 256. "Pulvis hic, ita rite piratus, est forte optimum remedium, usque cognitum quod paratur ex mercurio ad usus internos: Efficaciter, satis tuto, agit si cum sacchari conici triplo conteritur, facit panaceam mercurialem, potius dicendam, quam forte alia de mercurio parata quam laborissime.—Si datur jejuno adulto, pulvis saccharinus ad gr. ix. (which contains not præcip. gr. iijß.) alvum movet, movet vomitum leviter; vermes occidit, systema chylopoieticum aperit, liberat, purgat; pituitam solvit, sic morbos plurimos, gonorrhœam, scabiem, ulcera venerea, aliave curat. Si dosis hæc aliquoties repetitur quotidie semel, salivationem blande ciet. Si ejus ʒj. ung. pomati ʒjß. miscetur, facit medicamen, insectis cutaneis eradicandis, optimum, tutissimum; & scabiei sanandæ aptum; ut & ulcerosæ faciei, atque ulceribus cacoethicis perfanandis. Si calcinetur diu leniter; fiet tam mitis ut nec alvum ultra suscitet, nec vomitum; salivationem vix amplius excitet.—Solent chemici tum laudare pro diaphoretico, & correctorio; sed sæpe tum nimis mite parum sanant." *Boerb. Chem.* ii. 483.

By this precipitation it appears, that aqua reg. does not so dissolve mercury as the spirit of nitre does. But, the lotions notwithstanding, there still remains more acid fixed in the precipitate than is in mercurius dulcis; and hence it is more acrid: for if it be sublimed without any addition, it affords a sublimatus dulcis, no more emetic than the common; and a small quantity of a yellow saltish powder is separated from it, to which probably its acrimony and emetic quality was owing. Vide *Lem. Chym.* p. 258. "If the mercury be duly precipitated, there will be a small augmentation of weight: but the water separated, and the lotions commonly carrying along with them a part of it; it often happens, that the precipitate is not the full weight of the quicksilver employed. That this is the case appears by the new precipitation which is made by dropping into these waters the sp. salis ammoniaci or ol. tartari p. d. (but this last precipitate is reddish, of the same nature with the common white precipitate.)" Vide *Lem. Chem.* 260. He thinks the muria should not be too strong, least it suspend too much precipitate; and that some sp. salis ammoniaci should be added to it, for otherwise the precipitate will not be so white, but become yellowish in drying. His muria is, R Salis marini ʒx. aquæ ʒlxiij. sp. volatil. salis ammoniaci ʒj. circiter, for a solution argenti vivi ʒxvj. in spir. nitri ʒxvj. vel ʒxviij. As for m. præcipitatus dulcis *Pharm. Edin.* p. 178. I can say nothing about it. See *Lewis's Pharm. Edin.* p. 318. *M. præc. fusc.* infra.

As for mercurius præcipitatus per se, which is now received into the *London Dispensatory* under the name of mercurius calcinatus, the process is so tedious, and liable to so many accidents, that I am afraid it is seldom to be met with genuine, and though it were I don't see how it can be better than some other preparations of mercury, particularly the præcipitatus albus diu leviter calcinatus of *Boerhaave* abovementioned. See his experiments on fixing mercury, *Phil. Trans.* No. 430, and 443, above cited: where it is asserted that quicksilver, altogether insipid of itself, acquires a metallic brassy taste, and becomes acrid



and penetrating when reduced into a black powder, by mere shaking, or by long digestion in a heat of 180 degrees. And that by simple distillation it is changed into a shining red colour, becomes very friable of a very sharp horrid metallic nauseous and penetrating taste, hardly to be got out of the mouth, disturbing the human body long and much, and disposing it to excretions and purgings upwards and downwards. Vide *Phil. Trans. abridged*, vol. viii. p. 711. *Experiment 4.* Yet both these powders can by fire be reduced again to fluid, pure, insipid quicksilver.

“ Upon opening a person who had taken several ounces of crude mercury internally, at different times; there were found in several places of the guts scattered grains of the quicksilver, and along with them generally a black gritty powder, like æthiops mineral, which was without doubt the mercury changed into that consistence. The inner coat of the stomach was very much inflamed from one end to the other,” &c. Vid. *Phil. Trans.* No. 442. p. 291. for July 1736, or their *Abridgement*, vol. ix. part 3. p. 152, from Dr. Madden, Physician at Dublin. Is it rendered acrid and stimulating by the fire? Is it dissolvable in the stomach? Would not fixing it render it much less useful? I doubt if it is worth the pains taken with it. Vid. Process in *Schroder*, p. 404. “ Sudores, says he, valde movit, luen venereum, sexies vel septies exhibitus eradicat, febres omnes tollit, lumbricos eliminat, (Dosis a gr. iv. ad vi.) N. ut plurimum vomitum quoque movet sat violentum.” *Zwelfer*, in his *Mant. Spag.* p. 821. gives the figure of the phiala or matras, and adds, “ Virtutes diaphoreticæ potius quam purgantes sunt.” *Lemery* (*Chym.* p. 270.) gives the process, but owns it is little used, by reason of the difficulty of the preparation, and the long time (viz. two months and three weeks) it takes up. *Geoffroy* (*M. M.* i. p. 255.) says, “ Vomitum secessum et sudores movet. Dosis a gr. iii. ad vi. — *Mercurius calcinatus Ph. Lond.* argentum vivum purificatum ponatur super ignem arenæ, per plures menses, in vase vitreo, latum fundum, parvumque foramen aeri patens habente, donec in pulverem rubrum calcinetur.”

6. *Mercurius præcipitatus flavus*, turpeth. minerale officin. *Mercurius emeticus flavus Phar. Lond.* is quicksilver dissolved in ol. vitrioli, evaporated to dryness, and rubbed to a fine powder, which becomes yellow on the affusion of hot water, with which it must be washed till it is quite insipid.

The *Edinb. Dispens.* following *Lemery*, (*Chym.* 276.) takes ol. vitrioli ʒxvi. for argenti vivi ʒiv. et aquam tepidam. But *Boerhaave* (*Chem.* ii. 489) and the *Lond. Pharmacop.* only ʒviii. or double the weight of the mercury, and aquam calidam, (which *Pemberton* calls warm water). Cold water does not change the colour of the powder. Vid. *B. Chem.* ii. p. 490.

“ Mercurii crudi ʒiv. dissolved, or rather calcined, in ol. vitrioli ʒxvi. gives of dry calx ʒviß. which washing reduces to ʒij. ʒj. The humidity distilled off from the calx is only a weak acid spirit.—If the lotions be evaporated, there will remain at bottom a substance in form of a salt, weighing ʒij. ʒj. which in a moist place runs almost all into an excessively corrosive liquor, called *oleum* or *liquor mercurii*. *Oleum tartari* dropt into it precipitates the mercury.” Vid. *Lemer. Chym.* p. 277. Hence only one drachm mercurii calcis is lost; but perhaps none of the mercury, though much is carried off in the lotions.—“ *Liquor primus stet aliquamdiu quietus, coletur,* “ insipif-

“ inspissetur ad sextas. Erit mercurialis aqua; si enim pauxillum ol. tartari  
 “ p. d. instillatur, cadit pulvis præcipitatus rubellus.” *B. Clem.* ii. 489. No. 3.  
 Hence perhaps lime-water would do better. The *New Disp.* p. 341, advises  
 some fixed salt to be added to the water used for washing.

This insipid turpeth is a violent emetic and purgative, used to forward a  
 salivation, and wherever a mercurial vomit is wanted, being given to gr. viii.  
 though gr. v. commonly suffice, even in venereal distempers.—Dosis a gr. ii.  
 ad vi. *Geoffroy* i. 257. from *Lem. Chym.* 277. not named.

Turpeth mineral, spiritu vini prius super accenso, was probably one of  
*Paracelsus*'s most valuable arcana. Vid. *B. Chem.* ii. 490. *Sydenham* much  
 commends it, not only to promote a salivation, but even as the most effectual  
 remedy, whereby an obstinate gonorrhœa may be eradicated. Vid. *Epist.*  
*Respons.* p. 333, and 339. He gave gr. viii. for a dose. The great *Boerhaave*  
 has an observation on this process, illustrating that on the præcip. albus.  
 “ Metalla sola parum in nos agunt, nisi mole, figura, pondere: adjunctu  
 “ salium acidorum, acquirunt potestates novas sæpe mirificas, valde varias,  
 “ prout acida intime magis fixantur cum iis, aut magis extrinsecus adhæ-  
 “ rescunt. In forma vitrioli agunt quam violentissime. Inde facta calcina-  
 “ tione calx sensim mitescit. Diuturna magna calcinatione sensim expulsis  
 “ acidis, acerrima evadunt blanda; ut in ipso turbeth fieri solet: tum blan-  
 “ dior operatio sed et proportionaliter minus efficax. Sicque errant chemici  
 “ et medici, qui vero hoc turbeth mira experti, at violenter agente, quæsi-  
 “ runt mitigare illam virulentiam, quod facile fieri potest quidem, at fal-  
 “ luntur, dum postea idem conantur efficere jam mitifacito, quod acriore effe-  
 “ cerant. Modi acrimoniam hebetandi fiunt acidi ablatione, per ablationem  
 “ cum aqua; per distillationem aquæ simplicis, sæpe geminatam, semper  
 “ ad siccitatem usque, per incensionem alcoholis vini a pulvere mitigando;  
 “ per distillationem alcoholis novi repetitam, a metallo acido acri ad siccitatem  
 “ usque; per contritum cum pluri materie metallica, ut in mercurii dulcis  
 “ præparatione; adjunctu salium alcalinorum absorbentium in se acidum ex  
 “ metallo acidis calcinato; contrita cum creta, lapide cancrorum, ostracoder-  
 “ matis, similibus, acidorum veris spongiis; calcinatione diuturna, forti;  
 “ fixatione ignis a levi gradu sensim majoris, ad summum tandem vitro fe-  
 “ rendum.” *Chem.* ii. p. 491. Read the whole process.—Turpeth has been  
 used as an errhine, but does not operate with that violence which was ex-  
 pected. Vid. *Boyle Opera*.

7. *Mercurius præcipitatus fuscus*, vel *Wurtzii, offic.* is quicksilver dissolved in  
 aqua fortis, precipitated oleo tartari p. d. well washed with hot water, and  
 dried into a brown powder. It is said to be emetic, and milder than the tur-  
 beth. I have not found it any where but in our *Dispensatory*, edit. 1744;  
 wherein we have also a *mercurius præcipitatus dulcis*, which is m. sublimatus  
 corrosivus dissolved in hot water, precipitated with sp. salis ammoniaci, filtered,  
 and washed with hot water; which appears to be the process of the *London*  
 m. præcipitatus albus a little altered. Vid. *supra*, *Merc. præcip. alb.*

Are all these three precipitates, (viz. m. præcipitatus albus *Phar. Lond.*  
 p. dulcis and fuscus *Phar. Edin.*) equally dulcified, or equally acrid? So it  
 seems indeed, though I dare not assert it.



8. *Mercurius præcipitatus ruber off. m. corrosivus ruber Ph. Lond.* is quicksilver dissolved in aqua fortis, (aqua regia *Ph. Lond.*) evaporated to dryness, and calcined to a red mass. Vid. *N. Dispens.* p. 333.

“ Argenti vivi  $\text{℥viii}$ . dissolved in as much sp. nitri, and evaporated, give  
 “ calcis  $\text{℥xi}$ . violently caustic; but præcipitati rubri only  $\text{℥ix}$ . and much  
 “ milder. If it be sublimed per se, it continues red, but is still more dulci-  
 “ fied: as it is also by burning on it spirits of wine; whence it is called ar-  
 “ canum corallinum by some, and is the merc. corallinus *Ph. Lond.* — Sp.  
 “ vitrioli dissolves red precipitate, and the solution is clear without any redness.  
 “ Sp. salis dissolves it not, but makes it very white. Sp. sal. ammon. turns it  
 “ grey.” Vid. *Lem. Chym.* p. 266. This is more corrosive than the white  
 precipitate, but milder than the sublimate. Internally it is cathartic and eme-  
 tic, and has been sometimes used internally to hasten a salivation, and as a  
 stimulus to cathartics, in the French pox, quartan-ague, leprosy, &c. to gr. iii.  
 but not without great danger of inflaming the stomach, &c. Externally it is  
 of great use to cleanse foul ulcers, consume excrescences, callosities, &c.

“ Blande et absque dolore corrodit, si alicui emplastro inspergatur, vel un-  
 “ guento misceatur. Arcanum corallinum intus exhiberi potest. Dosis a  
 “ gr. ii. ad vi. *Geoff. i.* 256. — Præcipitatus hic *Joan. Vigonis* dictus, acer  
 “ est, rodens, vivis partibus dolorem creans, escharam producens, hinc sem-  
 “ per dein crassum, alvum pus generans, labia fundumque semiputrida  
 “ ulcerum depurans, ad sanitatem disponens. Interne datur periculose: vi  
 “ caustica viscera inflammat, anxietates, dolores, vomitum, alvi fluxum cum  
 “ torminibus excitat, per urinas sudoresque agit.—Dosis gr. iii. nunquam ex-  
 “ cedat.—Violentior est, et periculosior præcipitato albo.—Si vitreæ patinæ  
 “ cavæ impositus, igni imponitur, et fistula tabacaria agitur assiduo mutabit  
 “ colorem in profundiorum. Si opus diu continuatur, evadet tanto semper  
 “ mitior, ut tandem vix aget.” *B. Chem. ii.* 485, 486. Was the arcanum co-  
 rallinum ever sold instead of m. præcipitatus per se? I suspect it.

9. *Mercurius præcipitatus viridis, off. lacerta viridis quibusdam*, is a mercurial calx impregnated with a small quantity of copper. How many ways this may be done I cannot tell: we have three different receipts for making it in the three last editions of the *Ed. Dispensatory*; though perhaps the next will throw it out, as the *Pharm. Lond.* has done already. According to Mr. *Lemery*, argenti vivi  $\text{℥iv}$ . is dissolved in sp. nitri  $\text{℥iv}$ . and cupri  $\text{℥j}$ . in  $\text{℥i℥}$ . of the same spirit; the solutions mixed and evaporated to a dry mass (of  $\text{℥viii}$ . weight) and calcined for  $1\frac{1}{2}$  hour, will weigh  $\text{℥vi}$ . which being rubbed to a powder, is to be digested once and again in spirit of vinegar.—The different tinctures poured off are then to be evaporated to the consistence of honey, which when cold becomes hard, and being powdered is the green precipitate; whereof there will be  $\text{℥iv}$ .  $\text{℥i℥}$ . there remaining undissolved by the vinegar a yellow substance much resembling turbith mineral, which washed and dried will weigh  $\text{℥ij}$ .  $\text{℥ij}$ .—Some take only cupri  $\text{℥℥}$ . for mercurii crudi  $\text{℥iv}$ . but the precipitate is then less efficacious. Thus *Lem. Chym.* p. 271.

“ R cupri  $\text{℥℥}$ . aq. fort. dupl.  $\text{℥j}$ . f. solutio f. a. cui adde solutionis mercurii  
 “  $\text{℥viii}$ . m. et evapora ad siccitatem, pulveri affunde aceti distillat. ad super-  
 “ eminentiam aliquot digitorum. Digere in arena per biduum. Effusa tinc-  
 “ tura, novum acetum affunde et denuo extrahe. Tincturas mixtas, filtra, et  
 “ eva-

“evapora ad siccitatem.” *Pbarm. Ed.* 1722. Here the calcination of the calces is omitted, which seems very necessary, yet the process is the same in *Schroder*, p. 410. *Bates’s Pbarm.* p. 79. *Quincy*, p. 256. *Geoff.* i. 257. only the last takes cupri  $\mathfrak{z}\text{j}$ . — “R cupri  $\mathfrak{z}\mathfrak{ss}$ . aq. fort. dupl.  $\mathfrak{z}\text{j}$ . f. solutio f. a. cui  
“adde solutionis mercurii  $\mathfrak{z}\text{viii}$ . m. et evapora ad siccitatem.” *Pbarm. Edin.* 1735. This must be caustic in the highest degree; at least much more so than the red precipitate.—R mercurii sublim. corrosivi triti  $\mathfrak{z}\text{iv}$ . aquæ font. calidæ  $\mathfrak{lb}\text{ij}$ . f. sol. R limaturæ cupri  $\mathfrak{z}\text{iss}$ . spirit. salis ammoniaci  $\mathfrak{z}\text{viii}$ . f. digestio in matraccio, donec extrahatur tinctura saturate-cœrulea, quam filtratam instilla paulatim solutioni mercuriali. Præcipitatione peracta f. evaporatio in B. A. ad siccitatem.” *Pb. Edin.* 1744. How much copper is here dissolved? What is the colour of the precipitate? and who is its author? — I know not either its virtues or its dose.

The common green precipitate is emetic, cathartic, and astringent; and is much recommended in gonorrhœas; how justly I shall not say: perhaps it might be of more use in foul ulcers, shankers, &c. externally. Dosis ad gr. viii. vulgo. I would not exceed gr. v. or vi. I never prescribed it.

“Est specificum in gonorrhœa virulenta, quam nimiam tollit, insufficiens promovet, ideoque singulis diebus continuandus ejus usus est, donec omnis fluxus sedatus est. Dosis a gr. ii. ad viii.” Vid. *Schrod.* 410. *Bates* transcribes this without naming the author.

“Purgat per superiora et inferiora. A quibusdam specifica habetur in gonorrhœa virulenta. Dosis a granis duobus ad viii. quotidie, vel alternis diebus sumenda, donec fluxus penitus sedatus fuerit. Hujus tamen usus minus tutus, a quibusdam existimatur, ob cupri venenatam qualitatem.” *Geoff.* i. 257.—This once famous specific is now little used, and by many condemned. How variable the reputation and fate of medicines!

There are various mercurial ointments, plaisters, waters, &c. of signal use, as discutients, detergents, escharotics, which I shall not here mention.—I once found very good effects from the empl. de ranis cum quadruplici mercurio in a steatoma palpebræ.

Thus, so far as I am able, I have explained the nature and qualities of this wonderful mineral, and of its preparations: and if you have carefully observed, and considered the effects of mercurial unctions, of quicksilver, and how received into the habitus corporis, the changes made on it by acids, by fire, &c. how it is rendered corrosive, and how dulcified again by the same process, and the like; it will not be difficult for you to determine how many of the preparations are useful, and how many may be wanted; and how far, and why, the calomel is preferable to the powders and pills made of quicksilver, especially when a salivation is designed. And I hope you will never forget that mercury, as all great medicines are, is an edged tool, and to be used with caution, more especially when it is in any quantity to be lodged in the body: for if any one attempts to raise a salivation, without knowing how to prepare the patient for it; how to prevent the medicines going off by stool, &c. how supervenient symptoms are to be remedied; what length one may safely go, both as to the quantity of the mercury, and of the saliva, and the like; he may ruin his patient and his own reputation at the same time. Mr. *Geoffrey* has more than seven pages on salivating; but I believe few will follow his directions. Beware of his reasonings.





## LECTURE XVII.

## P L U M B U M.

## S E C T. I.

**P**LUMBUM, Saturnus *offic.* Plumbum nigrum, *Fallop. de fossil. c. 22. p. 322. Worm. Mus. 124. Plumbum, Dale 36. Geoff. i. 271, &c.* Lead. This is a very soft and heavy metal, of a livid colour, found in ores, from which it is refined. (*a*) Lead is to water in weight as 11345 to 1000. (*β*) It is the softest and least sounding of all the metals; melts before it grows red, and with less heat than any except tin. (*δ*) Is not very fixed in the fire, easily turning to a calx, and calcining other substances with it. *Vid. B. Chem. i. p. 37. Cramer. Docim. i. p. 5, & 21.* It is found in many countries, and in great plenty in Britain, sometimes near the surface of the earth, sometimes 40 or 50 fathoms under ground, in various forms, but chiefly in a shining scaly lead-coloured ore, yielding commonly from 65 to 70 pound per Cwt. if docimastically treated; but not so much by the common way of smelting. It was called galæna tessulata, *Cramer i. 214.* where one fourth part of it is said to be sulphur. It is refined at the lead-hills by coarsely powdering and mixing it with lime and coals, then throwing it into a very plain furnace, and raising the fire by blowing until it run. The first fusion brings it to its utmost perfection. Lead sometimes contains one pound of silver in every hundred weight. *Vid. Phil. Transf. No. 39.*

*Dioscorides* has Μολιβοδος πεπλευμενος, M: κεκαυμενος, σκωρια μολιβδος, & λιθος μολιβοδειδης. l. 5. c. 95—98. p. 359—361. *Vid. Mathiol. p. 934.*

“Antiqui distinxere plumbum in duo genera, nigrum scilicet et album  
“plumbum, quod Græci vocavere Cassiteron, et idem est quod stannum  
“apud nos. Dico apud nos, quod stannum antiquorum valde differt a nostro.  
“Itaque habemus 1. Plumbum nigrum antiquorum, et est plumbum nostrate.  
“2. Plumbum album, quod est nostrum stannum. 3. Plumbum cinereum,  
“quod in quibusdam Germaniæ locis, vocatur *Bisve*. 4. Stannum antiquorum,  
“quod duplex erat, unum naturale, res quædam quam nos despicimus,  
“vel non habemus; alterum arte factum et est nostra soldatura.”  
*Fallop. de fossilibus, c. xxii. p. 323. Vid. Hom. Il. λ. v. 25. [a]*

According

[a] The ores of lead assume different appearances in the bowels of the earth.

They are found,

A. In the form of calx. *Minera plumbi calciformis.*

I. Pure. *Minera plumbi calciformis pura.*

a. Friable lead, &c. Native cerussé. *Cerussa nativa.*

b. Indurated leadspar. *Spatum plumbi.*

1. Radiated or fibrous.

a. White firm.

2. Crystallized in a prismatical figure.

a. White.

b. Yellowish green.

II. Mixed. *Minera plumbi calciformis mixta.*

a. With the calx of arsenic, arsenical lead-spar.

1. Indurated white. *Calce arsenico & induratum album.*

2. With a calcarious earth. *Terra calcarca.*

B. Minera-

According to Mr. *Geoffroy*, “*Plumbum conflat ex terra quadam vitrescibili talcosa seu foliaceâ, et sulphureo principio, nec magna copia, nec in time cum terra permisto.*” See the experiments by which he proves it, vol i. p. 273—275, which are pretty curious.

Lead is much used in refining gold and silver; for though it calcines all other metals, yet it cannot touch them, so as to reduce them to a calx. According to Mr. *Grosse*, a solution of lead in sp. nitri evaporated till it forms little crystals on its surface, will, after a certain time, precipitate a grey powder, which not only whitens gold when rubbed on it, but also contains little globules of running mercury. Vid. *Macquer. Chem. prat.* i. 266.

## S E C T. II.

Lead is absorbent, antacid, adstringent, anodyne, and narcotic or virulent. Hence externally used it repels, dries and cicatrizes; and affords the best palliative remedies yet known for the most malignant tumors and ulcers, viz. scirrhi and cancers. Ad venerem etiam cohibendam laudatur.

“*Refrigerat, astringit, incrassat, &c. libidinem reprimat, ulcera carnibus replet, cicatrices obducit, excrecentiisque liberat; ulceribus chironiis quæ vocant, malignis cancris et putredinosis, tum per se, tum quibusdam aliis permistum, convenit.*” Vid. *Schroder*, p. 394—399, where you have 1. *Plumbi purgatio.* 2. *Calcinatio, incineratoria, reverberatoria, cementatoria, immersiva, et vaporosa.* 3. *Distillatio.* 4. *Sublimatio.* 5. *Extractio.* 6. *Mercurificatio,* and 7. *Salificatio.*

1. It is dissolved not only by spirit of nitre and vitriol, but also by vinegar, and by oils if it be calcined; even the common air in time corrodes it; and when dissolved by acids it destroys their acidity, and renders them sweet, nauseous and styptic. Yet it does not rust in, or communicate any bad quality to water.

2. The water in which lead-ore is washed is said to poison every animal that drinks it: and its fumes when smelting, calcining, &c. are very pernicious.

“*Fumus hic cum spiritu pulmonibus illapsus, attractus, et cum saliva deglutitus, ubi instar sacchari saturni saporem dulcem præ se fert, abit ad ventriculum et intestina, ubi horrenda symptomata excitare solet. Producit*

B. Mineralized. *Plumbum mineralisatum.*I. With sulphur alone. *Plumbum sulphure solo mineralisatum.*

- a. Steel grained. *Solidum granulatum.*
- b. Radiated. *Striatum sive fibrosum.*
- c. Tessellated. *Tessulatum.*

II. With sulphurated silver. *Plumbum argento sulphurato mineralisatum.*

- a. Steel grained. *Solidum moleculis minimis.*
- b. Fine scaly. *Particulis parvis micaceis.*
- c. Fine, sparkling. *Granulis parvis.*
- d. Of a fine cubical texture. *Tessulis parvis.*
- e. Of coarse cubes. *Tessulis majoribus.*
- f. Crystallized. *Crystallisatum.*

III. With sulphurated iron and silver. *Plumbum ferro & argento sulphurato mineralisatum.*

- a. Fine sparkling. *Granulis.*
- b. Fine cubical. *Tessulis parvis.*
- c. Coarse cubical. *Tessulis majoribus.*

IV. With sulphurated antimony and silver. *Plumbum antimonio & argento sulphurato mineralisatum.*

- a. Of fine rays or fibres. *Fibris tenuioribus.*
- b. Of coarse rays or fibres. *Fibris crassioribus.*



“ autem præcipue morbum spasmodicum, tormina, summe convulsiva cum  
 “ alvi pertinacissima obstructione, qui morbus Germaniæ *die Hutten-Katze* ap-  
 “ pellatur, quod intolerabilis ille intestinorum cruciatus, ægrotantem, non-  
 “ nunquam rabiosæ felis circumgyrationem imitari cogat. Illisque hominibus  
 “ aliquando nec standi nec sedendi datur potestas, inquieti huc atque illuc  
 “ jactantur; lectu si aliquantum incubuerint, terram vicissim repetunt, un-  
 “ guibus eam rodunt, et immanes ventris dolores, cum sudore nonnunquam  
 “ frigido et lipothymia patiuntur. Complicatur hisce malis statim vehe-  
 “ mentissima alvi constipatio, ita ut nihil flatuum nedum excrementorum per  
 “ anum exeat. Purgantia omnia irritò effectù propinantur, et malum sæpius  
 “ exasperant. Superveniunt cardialgiæ synopticæ, vomitus, febres lentæ  
 “ cum siti, urinæ suppressiones; tandem si morbus diu duraverit, accedunt  
 “ etiam convulsiones, musculorum contracturæ, item paralyfes partium ex-  
 “ ternarum, crurum, et manuum.” Vide *Hoffman. Metallurg. Morbis.* p.  
 31—37.

3. Outwardly applied it stops perspiration, eases pain, dries, repels, and if dissolved and much used in a manner deadens the part. It is as dangerous in critical eruptions or inflammations, as it is beneficial in cancers. “ Plum-  
 “ bum elotum ulceribus rebellibus utile est, nam et ad cancrofa eo utens,  
 “ virtutem medicamenti miraberis.” *Galen. Simpl. l. ix. p. 70.*

4. The salt of lead dissolved and injected into the veins of a dog suddenly kills him. “ In venam canis jugularem injeci sacchari saturni, in decocti  
 “ corticis granatorum ʒij. soluti ʒij. Extemplo fere cor languescere coepit,  
 “ ita ut admota ad thoracem manu, pulsatio illius vix percepi posset: respira-  
 “ tio gravis & anhelosa, deinde spasms ingruentibus, intra horæ minuta 5ue  
 “ successit mors. Aperta vena jugulari & iliaca, exiit sanguis partim fluidus,  
 “ partim grumescens, tenaciterque concretus: supernatabat quasi oleum quod-  
 “ dam quod saccharum saturni sapore referebat. In aorta sanguis ita concre-  
 “ vit, ut pene fibrosus evaderet. Pulmones coagulato sanguine repleti, non-  
 “ nullis etiam in locis, inflammati. In corde sanguis universus ita concretus  
 “ est ut ventriculorum columnis quasi adnasci videretur.” *Freind, Emen. c. xiv.*  
 It also coagulates the blood and serum; as does likewise the acetum plumbi.  
 “ A saccharo saturni sanguini arterioso canis admixto, concretio mediocris,  
 “ color tamen satis vividus.” *Freind, l. c.*

“ Est adstringens stypticum, sanguinem coagulans satis promptum.” *Boerb. Chem. ii. 456.* “ Acetum plumbi humores animalium coagulat, incorruptos  
 “ condire valet. Si dilutum cuti affricatur, pustulas, rubedines, erysipelas,  
 “ phlegmonas multum levat, cuti candorem, nitoremque conciliat, sed cor-  
 “ pori nocet, tandem in phthisin deducendo, ut tristissimis sæpe constitit ex-  
 “ emplis.” *Ibid. i. p. 455.*

5. All the preparations of lead inwardly taken are poisonous, and the more soluble the more virulent. *Fernelius (de lue venerea, c. vii. p. 588.)* says, a friend of his, subject to the gout, hearing an empiric commend greatly plumbi pulvis in that disease, “ Pulveris ejus sesquilibram ex jusculis, ex vino, pyris coctis,  
 “ aliisque cibis, sacchari loco, dierum 15 spatio absumpsit.” Upon which, die duodecimo, he was seized with a cruel dysentery, tormenting pains in his stomach and guts; then with violent vomitings, belchings, &c. “ Sedata  
 “ dysenteria, says he, graves illi ventres, lumborum & ventriculi cruciatus  
 “ dies

“ dies 20 perseverarunt, cum incendii interni molestissimo sensu, totidemque  
 “ noctes peregit insomnes.—Appetentia prostrata jecuit, nec alvus quidpiam  
 “ nisi vel clystere vel cathartico medicamento proritata, reddidit, & quæcun-  
 “ que tum infra tum supra prodire, plumbeo colore infecta erant omnia.  
 “ Interim exorto ictero, corpus totum sædaturum apparuit, ac sanguis detractus,  
 “ totus flavus, biliosus ac spumofus deprehensus est.—Hi dolores cum nullis  
 “ purgationibus cedere viderentur, balneorum, & lactis asinini usû curavi-  
 “ mus.” Thus *Fern.* In a manuscript attributed to the late *Allinus, Professor*  
 at *Leyden*, mention is made of one who by taking too much sacchar. saturni  
 was thrown into convulsions and epileptic fits.

“ A sacchari saturni immodico usû paralyfin ortam, lege apud *Jo. Rhodium*,”  
*Cent. iii. Obs. 10.* “ Notatu digna de sale saturni communicat *Borellus*,”  
*(Cent. iv. Obs. 32.)* “ Amicum, inquit, habui qui sacchari saturni hausit ni-  
 “ miam quantitatem, unde tanquam paralyticus, & fere mortuus factus est,  
 “ ut tandem conclamaretur, rigeant membra ejus, & tanquam congelatus  
 “ & apoplecticus erat.” *Hoff. Metal. p. 37.* “ I have known many odd in-  
 “ stances of a strange kind of colic, amongst the men who labour in the white  
 “ lead yard in Goodman fields.” Vide *Quincy, Pharm. p. 244.* and Sir *Phili-  
 berto Vernatti* in *Phil. Transf. No. 137.* There has been monsters in human  
 shape who have made the art of poisoning their study. Mr. *A. Hay* told  
 me that he saw at *Naples*, about 1716, in prison, one of this gang, called  
*Madam Tufana*, who owned she had poisoned 30,000, (*vix credibile*) with a  
 liquid, which from her was called *Aq. Tufana*, and that a learned English  
 gentleman was of opinion, some preparation of lead was a principal ingredient  
 in it: Many people had been poisoned by cyder fermented in a leaden vessel,  
 in his neighbourhood, some time before. [b]

## 6. The

[b] Dr. *Baker*, from a public spirit of en-  
 quiry, set on foot with a view to relieve the suf-  
 ferings of his fellow subjects, has by a variety  
 of the most interesting experiments ascertained  
 the presence of lead in the cyder of Devonshire,  
 and which he has very satisfactorily proved to  
 be the cause of a colic, endemial in that county;  
 he has received the most undoubted testimony  
 of various adulterations which are there em-  
 ployed; he has from the best authority learned  
 that many of their utensils are lined with lead,  
 and that those who drink cyder prepared in  
 such vessels, are more especially subject to that  
 disease.

The experiments by which such an adultera-  
 tion was detected, are the following.

## EXPERIMENT I.

A small quantity of Devonshire cyder being  
 exposed upon clean paper to the fumes of the  
 volatile tincture of sulphur, became immedi-  
 ately of a darkish colour. And we could only  
 imitate this colour by exposing a dilute solution  
 of *saccharum saturni* to the same fumes. A small  
 quantity of Herefordshire cyder, exposed in

like manner to the same fumes, exhibited no  
 such appearance, until a few drops of a solution  
 of *saccharum saturni* were added to it.

## OBSERVATION I.

From this experiment we are to understand  
 that the acid, before united with the lead in  
 the cyder, and the volatile alkali in the tincture  
 of sulphur, mutually attracted each other; and  
 that it was the precipitate of the lead, united  
 with the sulphur, which produced the dark  
 colour above-mentioned.

## EXPERIMENT II.

A small quantity of *hepar sulphuris* (prepared  
 by digesting together in a sand-heat one ounce  
 of orpiment, and two ounces of quick-lime,  
 with twelve ounces of water, in a close vessel)  
 being added to some Devonshire cyder, in a  
 few minutes occasioned a darkish colour in the  
 body of the liquor, and the whole became very  
 opake. No such change was produced in the  
 cyder of the county of Hereford, until a few  
 drops of a solution of *saccharum saturni* were  
 infused;



6. The ancients used plumbum and its preparations only externally for ganglions, scirrhi, cancers, ulcers, hæmorrhages, insomnia venerea (lumbis applicata), and the like; also for the hæmorrhoids, where they are not always safe: far less are they so for erysipelas: for I know one on the leg turned into a mor-

infused; when the same appearance likewise was perceived.

#### OBSERVATION II.

The reasoning made use of in the former observation, is applicable here. The decomposition of the *saccharum saturni* and of the *hepar sulphuris* was effected by the same laws of elective attraction.

#### EXPERIMENT III.

To a small quantity of Devonshire cyder a few drops of *hepar sulphuris* (prepared by boiling equal parts of fixed vegetable alkali and sulphur together in water) were added; and a precipitation of a very dark colour was produced.

When Herefordshire cyder was treated in the same manner, the precipitate produced was as white as milk; and it was only upon the addition of a few drops of a dilute solution of *saccharum saturni*, that a precipitate of the same colour with the former could be obtained.

#### OBSERVATION III.

There is some nicety required in making this experiment. The *hepar sulphuris* is not to be added in any large quantity; for as all the lead is precipitated upon the first addition, it is easy to perceive the several successive shades of colour in the precipitate, until all the lead is separated; and then the precipitate, upon a farther addition of *hepar sulphuris*, assumes the whiteness of the precipitate obtained from the Herefordshire cyder, which intitles it to the appellation of *lac sulphuris*. If a large quantity of *hepar sulphuris* be at once added, the whiteness of the too copious precipitate is such, as to render the dark colour of what is first precipitated imperceptible.

#### EXPERIMENT IV.

Some Devonshire cyder was examined by means of the volatile tincture of sulphur, as in experiment III: and a very dark-coloured precipitate was obtained. A similar precipitate could not be obtained from Herefordshire cyder, until a weak solution of *saccharum saturni* had been added to it.

Some of the Must (taken from the press in the parish of Alphington) treated in the same manner, produced precipitates of a deeper dark colour. This sufficiently shews, that the solu-

tion of lead in the Must, was stronger than that in the cyder.

It is a matter of no consequence, whether the lead, the existence of which is proved, was applied to the cyder in its state of Must, or in that of a vinous liquor. However, as the Must afforded more considerable signs of impregnation than the cyder, it should seem probable that the lead was incorporated with the Must; and that, as the acid, during the fermentation, is in a great measure converted into alcohol, a proportional quantity of lead would necessarily be precipitated.

The same experiments were afterwards tried on several other specimens of Devonshire and of Herefordshire cyder, from the cask as well as the bottle. The result of them was constantly and uniformly the same as has been described, except only in three or four instances. Three bottles of different kinds of the former shewed no signs of having been impregnated with lead; and one of the latter, which I very lately examined, gave a darkish precipitate.

It has been proposed by several authors, to detect such adulterations of wines by means of the vitriolic, or of the muriatic acids; which by uniting with the lead, will make it precipitate. But it is ascertained, by the experiments of Professor Gaubius, that trials, made with the acids, are less conclusive than those which have been related.

#### EXPERIMENT V.

In order to put the matter intirely out of doubt, an extract was made from 18 common quart bottles of Devonshire cyder, of the preceding year, (first strained through a linen cloth) which had been in my cellar more than three months, but had been only a fortnight in bottles. This extract, being assayed with the black flux, a quantity of lead, weighing four grains and an half, was found at the bottom of the crucible.

#### EXPERIMENT VI.

Two pounds of pearl ashes were dissolved in water; and the solution, having been filtered, was added to three gallons of Devonshire cyder, drawn from a cask. The liquor became turbid, shewing marks of a precipitation. It was then filtered; and the filtering papers, together with the powder, which was left on them, were burnt

a mortification by the application of a weak solution of *saccharum saturni* in aq. rosarum to the part. Yet the moderns have given it inwardly, and in some cases with good effect, as in some hæmoptoes and excessive hæmorrhages. *An etiam tuto exhibentur in quibusdam gonorrhæis*, where there is such an effervescence, rarefaction or expansion of the blood, or perhaps such an elasticity of the

in a brass mortar, and afterwards burnt in a crucible, being stirred with an iron spatula in order to promote the union of the particles. The contents of the crucible were then exposed on a sheet of clean paper, and were carefully examined. Some very small globules were here found; which, being melted in a clean crucible, were reduced into one mass, which was evidently malleable lead. The quantity was a little more than one grain.

As lead is known frequently to operate by slow degrees in producing its poisonous effects, and as experience has sufficiently authorised us to believe that when accumulated in the constitution it may be productive of many chronic diseases unaccompanied with the symptoms of the *colica pictorum*, it was of some importance to inquire in how many different ways it might enter into our bodies, and therefore the same eminent physician made the following enquiries, and instituted the following experiments for that purpose.

“ Upon inquiry into the composition, which is ordinarily used for lining copper vessels, I find it to consist of block-tin and lead, in different proportions, laid on with a solution of crude *sal ammoniacus*, or resin. It seems probable, that this composition is made with more or less lead, in an arbitrary manner, as the artist chuseth. There is one person in this town, who professeth to line his copper utensils with block-tin, without any other metallic addition. Others, of the same trade, insist that this cannot be done. Some even justify the mixture of lead; and contend that, by means of it, the metal acquires a brighter colour, more like silver. Upon examination, I find, that it is much more difficult, as well as more expensive, to line vessels with pure tin only; that the metallic composition, being more malleable, is more easily spread over the copper; and that to lay on pure tin requires a particular dexterity, which few or none of the common artists are masters of. And I am informed, that, even when the common artists do honestly intend to line their vessels in the best manner, although they do spread a coat of pure tin on the surface of the copper, clean scoured, and washed with a solution of the crude *sal ammoniacus*; yet they do not possess the art of finishing their work perfectly, unless by covering the surface with a composition, in which there is a very large

proportion of lead, namely, the proportion of twelve ounces of lead to sixteen of tin; which increased quantity of lead brings the composition very near to the common standard for tinning copper-vessels.

I have in my possession several specimens of the metallic mixture, used for this purpose, which I collected from different shops. That lead made a part of this composition, was manifest from its softness, easy fusibility, and easy calcinability. But in order to prove this with greater certainty, I filled the same bullet mould exactly with the melted metals mentioned below. Their weight in air was as follows.

- Nº. 1. Pure block-tin, 190 grains.
- Nº. 2. A composition, made of sixteen parts of tin, and ten of lead, 217 grains. Increase 17 grains.
- Nº. 3. Tinning metal, of one shop, 212 grains. Increase 22 grains.
- Nº. 4. Tinning metal, of another shop, 218 grains. Increase 28 grains.
- Nº. 5. Pure lead, 286 grains. Increase 96 grains.

But I am informed by a person, conversant in this business, that, in order to determine, whether or no the metal, used for the purpose of covering copper vessels, contains a mixture of lead, no other experiment is necessary, but to rub the surface of it with a finger; which, when lead enters the composition, always contracts a livid, blackish colour; but is not discoloured, when rubbed on pure tin only.

In order to determine, whether sauces are ever really impregnated with lead in the common culinary vessels, I ordered a mixture to be made of butter, water, and salt; and one eighth part of distilled vinegar to be added. This composition, after it had remained twenty hours in the tinned vessel, in which it was made, and heated, was again exposed to the fire; and a small portion of it being examined by the volatile tincture of sulphur, became immediately of a dark brown colour. A small quantity of the *hepar sulphuris* (prepared in the manner already described) having been dropped on another portion of the same sauce, occasioned a discolouration still darker.

Another sauce, exactly of the same composition, was prepared in the same vessel; and was immediately examined in the manner before



the vessels as cannot easily be overcome without the assistance of the calming, condensing, debilitating qualities of lead? But at the same time I must own, such cases are very rare; and, perhaps, there are none where safer medicines may not be as successful. I never prescribed it inwardly.

“ Sal

mentioned. The result of these trials was nearly similar to that of the former. Only the discolouration was less dark.

Another sauce was made in the same vessel, exactly of the same materials, and in the same quantities; to which the proportion of distilled vinegar, above-mentioned, was added, after it was poured into a glass vessel. Upon this mixture the same trials were made with both the tests. But no such change of colour was observed. The *hepar sulphuris*, only made it whiter than it had been before that addition.

The gradation of colours in the three sauces, on which the trials had been made, was so evident, that a person, who had not been present, when they were made, had no difficulty in determining which sauce contained the greatest quantity of lead; which had the least; and which had none.

The same sauce, having been prepared in a silver vessel, was kept in it twenty-four hours. But, on the application of the tests, its colour was not affected.

The same trials were afterwards made on some clear soupe, made at a tavern, in the preparation of which several acid vegetables had been used. Both the volatile tincture of sulphur, and the *hepar sulphuris* produced in it a dark colour.

In Neumann's chemical works, translated by Dr. Lewis, page 460, there is a note subjoined by the editor, respecting the habitude of tin to the acetous acid; Neumann having found that this metal does not dissolve in vinegar, and Margraaf having affirmed that it dissolves in it with ease. From some experiments, which Dr. Lewis made on plates of tin, put into common vinegar, and into the acid juices of fruits, he concludes, that, although tin may not be soluble in these acids, with regard to the purposes, for which the chemists want such a solution; yet that tin, or tinned vessels, however pure the tin be, will give a metalline impregnation to light vegetable acids, suffered to stand in them for a few hours.

I do not undertake to decide a question, concerning which men of such chemical experience have differed in their testimony. But it seemed necessary to determine, whether or no any solutions of tin, in the vegetable acids, could deceive us in our trials with the tests. Therefore the following experiments were made.

1. Into some vinegar, in which a thin piece of block-tin had been left twenty-four hours, were instilled several drops of the solution of orpiment. Only a deep yellow colour was produced.

2. Into an equal quantity of the same vinegar, the same quantity of the solution of orpiment was instilled. The colour of the mixture was exactly the same, as in the former experiment.

Hence it appeared, that the vinegar had received no addition from the tin, which was demonstrable by that test.

3. Into the vinegar, of the first experiment, after it had stood near three weeks on the tin, the same quantity of the solution of orpiment was added. The appearance of the mixture was exactly the same, as in the first experiment.

4. A few drops of the volatile tincture of sulphur were added to the vinegar, of the first, and of the third experiment. No change of colour was produced, but what was equally produced by the same addition to pure vinegar.

5. In order farther to determine, whether any solution of tin in the vegetable acids could possibly deceive us in our trials with the tests; I put into a sand-heat

common vinegar, }  
essential salt of sorrel, } with a thin plate of  
juice of lemons, } tin in each.

These, after maceration for twenty-four hours in B. A. were examined by means of both tests. But neither of them shewed any discoloration, except what the same tests had before produced in pure vinegar.

It is therefore fairly to be concluded, that pure tin yields nothing to vegetable acids, which can make our experiments on common tinned vessels, by means of the tests, fallacious.

From what has been premised, does it not seem reasonable to imagine that the health at least of persons of tender constitutions may sometimes receive injuries from the use of acid sauces and soups, prepared in such vessels? Particularly is it not probable, that the bowels of children may frequently suffer from their food, in this manner impregnated with lead? And, in general, may it not justly be concluded, that some of the slighter disorders of the first passages (which one practitioner may perhaps at tribute to indigestion, another may call, by a fashionable term, *bilious, nervous, scorbutic*, or

by

“ Sal plumbi interne commendatur pro remedio salubri contra hæmoptoen,  
 “ hæmorrhagiam, mictum sanguinis, gonorrhœam, fluores albos, & similia,  
 “ tum etiam pro mitificante remedio contra acria sanguinis.— Sed nunquam  
 “ ausus fui facere periculum: quia felices successus haud vidi, ab aliis adhi-  
 “ bentibus

by other terms, too often expressive of nothing, but our own ignorance) may be the first effects of a concealed poison? And may not some part of that benefit, which our health usually receives, on our quitting, for some time, the accustomed place of our residence, arise from the circumstance of our quitting the daily use of something deleterious, which we may have been accustomed to swallow with our daily nourishment?

Nor is there less danger to be apprehended from the use of the common glazed earthen vessels. It is well known, that the *calces* of lead are more easily dissolved in the vegetable acids, than the crude metal. Vinegar, boiled with the glass of lead, or in the glazed earthen vessels, the glazing of which is principally lead, becomes strongly impregnated with the pernicious qualities of the metal; and yields, on evaporation, a true *saccharum saturni*. But this glazing is very considerably acted upon even by cold vinegar. And hence it is manifest, that the custom, which I apprehend to be too common, of keeping pickles in such vessels, cannot but be dangerous to health. And the same observation may, on the same principle, be made on a practice, which, I find, prevails, particularly among the lower class of people, of baking their fruit-tarts in a cheap kind of glazed earthen ware. A friend of mine lately informed me, that, having observed a currant-tart, in such a dish, he expostulated with the mistress of the family on the danger, which might be apprehended from this custom; and that she answered, that “ she gave the preference to that sort of “ earthen ware from a principle of frugality; “ it being a fact commonly known by all good “ house-wives, that fruit, baked in those vessels, requires a much less proportion of sugar “ to sweeten it, than when baked in any other “ vessel whatever.”

Here then is a remarkable instance of a most insidious poison, taking as it were an advantage of our necessities, and recommending itself to us by means of a quality, which at once favours oeconomy, gratifies the palate, and may lay the foundation of a painful, lingering disease, more formidable than death.

In order to confirm the general doctrine, which has been advanced in these papers, concerning the pernicious effects of lead, taken internally, I here subjoin instances of much mischief

chief done by very small quantities of that mineral. The three first were communicated to me by Dr. Heberden. The last I owe to the favour of a learned physician, of undoubted credit.

How very small a quantity of lead will sometimes bring on the peculiar mischief, which it occasions in the human body, appeared in the case of one, who, after frequently making bloody water for five years without pain, or inconvenience from going in his carriage over the stones, for the next two years made no other; at the end of which he died. Upon opening the body, the substance of the left kidney appeared to be changed into little bags, full of *farines* and blood; but no stones were found in the urinary passages; nor had any ever been voided. While the blood was coming away in such an extraordinary quantity, the patient was advised to put himself under the care of one, who gave him a grain of sugar of lead, morning and evening, for four days; and then once in two days for three or four days more. The discharge of blood was not at all checked by the sugar of lead; but this small quantity was sufficient to bring on loss of appetite; intolerable uneasiness of the stomach and bowels; want of sleep; costiveness; and a paralytic weakness of the hands, which continued upon him for three weeks. The same quantity given to a patient, in a little different manner, four grains being taken in a day for three days, occasioned intolerable uneasiness in the bowels for some months.

A woman, who had a *fluor albus*, took by the advice of a nurse, one drachm of sugar of lead in the space of nine days. In consequence of this, she was afflicted with great pains all over her body, for above half a year, but not particularly in her stomach and bowels, except after eating; and the *fluor albus* was not at all restrained.

Dr. Heberden observes, that all people are not equally affected with equal doses of this poison; and that this property belongs to it in common with all the nervous poisons; every one of which, as is daily experienced in *opium*, affects different people very differently.

He observes likewise, that it is greatly to be wished, that lead could be given with more safety; as it possesses powers, which are often much wanted, and which are not to be found



“bentibus natos, & quoniam novi vix dolosius haberi, tetrumque magis  
 “venenum, quam ab hoc plumbo, statim in cerussam redituro ac acidum,  
 “ab occurrente quacunque re inde absorbetur. Hinc lethale, nec postea fa-  
 “cile sanandum, venenum corpori inducitur.” Vide *Boerb. Chem.* ii. p. 456.  
 “Plumbum

in any other simple. One of the persons, mentioned above, by taking four grains of sugar of lead, had a flooding stopped, which had lasted for two months, unchecked by all the most powerful astringents in common use. But, he adds, the good effects are not so certain as the mischief; and, in most cases, would be far overbalanced by it.

A gentlewoman, aged about thirty-three years, had been, for two years, subject to almost a constant *hæmorrhagia uterina*; for there had been during that time, very few days, in which she had been quite free from it. For several days together, she frequently lost half a pound of blood in a day. Some time before this disease began, she had suffered a difficult and dangerous labour; but having had no extraordinary hæmorrhage at that time, or for some months after it, she could not attribute her disorder to that cause. She had tried several medicines without effect. She had particularly taken the Peruvian bark, both in the extract, and in the decoction; which did not stop the flux. A large spoonful of Eaton's styptic, taken twice a day, stopped it for several days; but heated her so much, that she could not continue the use of that medicine. A physician was consulted on the seventh of February, 1761. He found, that, for several days past, she had daily lost at least eight or nine ounces of blood. She was now pale, weak, and emaciated. She had observed no difference with respect to her disorder, from the effect of any food; and had equally suffered, whether she confined herself at home, or went out to take the air in a coach. He ordered the *emplastrum roborans* to be applied to her loins; and the following draught to be taken twice a day.

℞ *Corticis peruviani, in pulverem contriti, unciam unam;*  
*Aquæ puræ, uncias sedecim.*  
*Decoque ad uncias duodecim, et cola.*  
 ℞ *Hujus decocti, fescunciam;*  
*Tincturæ corticis peruviani simplicis, drachmas duas;*  
*Tincturæ saturninæ, guttas viginti;*  
*Syrupi balsamici, drachnam unam. misce.*

On the tenth of February, the dose of the *tinctura saturnina* was increased to thirty drops; and the draught, with that addition, was taken twice a day. On the twelfth, finding that,

though the medicine had agreed well with her stomach, yet the flooding was not considerably abated, he prescribed, instead of the draught, one large spoonful of the following mixture, to be taken every morning and evening.

℞ *Aquæ puræ, uncias tres;*  
*Sacchari saturni, grana decem;*  
*Spiritus vitrioli tenuis, guttas duodecim. misce.*

After she had taken four doses of this mixture, the flooding was much abated; but she complained of pains in the bowels, and of a sensation, as if they had all been drawn to her back; and likewise of pains about her stomach, and a straitness in breathing. Judging these to be symptoms of the colic of Poitou, occasioned by the *saccharum saturni*, he ordered the following draught to be taken immediately.

℞ *Aquæ alexeteriæ simplicis, fescunciam;*  
*Tincturæ senæ,*  
*Elektarii lenitivi, singulorum drachmas duas. misce.*

This medicine opened her two or three times. The physician then ordered an oily mixture; which she could not keep on her stomach. On the next day he repeated the laxative draught, which still kept her body open. On the next day, though the gripes had ceased, she complained of a sickness of her stomach; and vomited all her food, as well as an oily medicine which she had taken. At night the physician ordered the following pills, to be taken immediately.

℞ *Extracti cathartici, scrupulum unum;*  
*Extracti thebæici, granum unum.*  
*Dividatur massa in pilulas quinque.*

She passed the night tolerably easy, though without sleep. She had no return of vomiting for seven hours; and the next day had two stools. But then she began to vomit all that she had eaten, or drunk. The physician then applied a plaster of *theriaca Andromachi*, with some *oleum nucis moschatæ expressum*, to the region of the stomach; but without effect. At night he repeated the pills, of *extractum catharticum*, and — *thebæicum*; which had the same effect as before; that is, they made her pass the night without vomiting, and gave her a motion or two on the next day. In the afternoon, when she was threatened with a return of vomiting,

“ Plumbum nervis prorsus inimicum est, & noxium. Intus sumptum stomachi gravitatem cum torminibus diris invehit, alvum & urinam suppressit, membrorum tremorem & spasmodum excitat, difficilem respirationem affert, ac tandem suffocationem. Quod quidem a quamplurimis tristi experientia comprobatum fuit, qui noxas gravissimas & saepe immedicabiles perpeffi sunt a potu vinorum, quæ acidiora vel acescentia, per lithargyrum, nefando mangonio edulcata fuerunt. Plumbum itaque & omnia ejus preparata usui potius externo quam interno, destinanda esse procul dubio censimus.” *Geoff.* (i. 275.) who well deserves to be read on this metal.

*Quer.* 1. Why was the pulv. plumbi so long taken, before it discovered its virulency? Because sooner a sufficient quantity of it was not dissolved.

2. How comes it that leaden bullets will remain many, sometimes thirty or forty years in the body, and do no more prejudice than if they were of gold? Because meeting with no acid, and being kept from the air, they do not dissolve, but only form a skin or callus round them. Though the air corrodes lead, water does not, unless some acid be added: hence it is that our waters are not infected by it; and we see that small fishes will live many years in large cisterns or receptacles of water, though made of this metal.

“ Plumbum sic (ex *Fernelio*) pulveratur. In laminas tenellas primum ducitur, quæ minutissime concisæ, aceto quam acerrimo immerguntur maceranturque triduo, permutato quotidie, si videtur, aceto: postea exemptæ, & igni siccatae citra ulsionem, in mortario laboriose teruntur in tenuissimum, pulverem, cujus vis eximia ad maligna ulcera blande corrigenda, expurganda, & ad cicatricem perducenda.” *Renod. Institut. Pharm.* l. ii. c. 9. pag. 52.

### S E C T. III.

The more usual preparations of lead are plumbumustum, lithargyrus, minium, cerussa, acetum, saccharumque saturni; one or other of which makes a principal part of many plaisters and ointments.

vomiting, he gave her one scruple of salt of wormwood, together with a large spoonful of juice of lemons, in the act of effervescence. This she threw up; but afterwards vomited no more.

The physician observes, that this was a degree of the true painter's colic; and that it appears, by this instance, that sugar of lead is, in such a case, a dangerous medicine, at least in the dose in which it was here given; but that it must however be remarked, that, during the time of the disorder in the stomach and bowels, the flooding was either inconsiderable, or totally stopped. The *extractum catharticum cum opio*, he thinks, was manifestly of service by stopping the vomiting, and giving stools.

He understood afterwards, that, in about a fortnight after he had left the patient, upon a return of the flooding, the apothecary had unadvisedly repeated the solution of the sugar of

lead; which produced precisely the same bad effects as before. However she again got the better of her remedy, and continued for some time with her flooding as before.

Some months afterwards the physician saw this patient. She then looked like a person in good health; and said she was so. Her account was, that, after he left her, she returned to the use of the Peruvian bark, although she had taken it ineffectually before. But partly to that, and chiefly to the use of Florence-wine at her meals, she herself ascribed her recovery.

From what has been offered on this subject, it may fairly be inferred, that lead, taken into the stomach, is a poison; I do not say *ex proprietate naturæ et tota substantia*, but, which is capable of doing more hurt than good to the generality of men, in all the known ways of using it; and consequently that it cannot be avoided with too much caution.”

1. *Plumbum*



1. *Plumbum ustum*. “*Plumbum igne leni liquefactum, agitetur assidue “ spathula ferrea donec in pulverem abierit,” Pharm. Ed. p. 34.* This way of making plumbum ustum is mentioned by *Dioscorides*, among several others, but not approved of by him. “*Sed difficilis, says he, hujusmodi ustio, et si “ amplius uratur lithargyri colorem contrahit. Magis tamen nobis placet pri- “ ma urendi ratio;*” that is, *f. f. f.* with sulphur; but cautions to beware of the fumes. “*Quoniam halitus plumbi noxius est.” l. 5. c. 96.* Which last is also the plumbum ustum *off. Schroderi*. Lead calcined per se, though by a burning speculum, is considerably increased in weight, notwithstanding its sulphureous part flies off in fumes. “*Plumbi lbxx. gives of calx lbxxv. which reduced again to lead, will weigh only lbxix.” Lem. Chym. p. 144. An sulph. itaque  $\frac{1}{10}$  pars?* Whatever way calcined, it is lead opened and rendered more soluble, but not less noxious. It is used in the *ung. diapompholygos*, and on that account the preparation was first inserted into our *Phar. edit. 1744*. Now the *diapomph.* being banished, the *pl. ustum* ought to have followed it.

2. *Lithargyrus. vel lithargyrium off.* *Spuma argenti, Plin. l. 33. c. 6. p. 797. lin. 23.* who makes three kinds of it, *chrystitis, argyritis et molybditis*. *Lithargyrus Dioscorid. l. 5. c. 102. p. 362.* Cui etiam triplex, sc. *lithargyrus, arabibus merdasengi & martech. Fallop. de fissil. c. 27. p. 328.*

Litharge is a semi-vitrified calx of lead. It is brought chiefly from Dantzic, either in form of a coarse scaly powder, or in lumps or stones. If of a red colour, it is called *lithargyrus auri*; if whitish, *l. argenti*; which difference is owing to the degree of calcination they have undergone, if not in their age only, for both turn white after being long exposed to the air. The ancients preferred the *chrystitis*.

Although lead may be turned to litharge by calcination without any addition, yet the *lithargyrus offic.* is that calx which is made when silver is separated from copper in the copel by lead, and so contains some calcined copper, but not above  $\frac{1}{10}$  part at most. Is it ever so much? From *lithargyri 3iij. I had plumbi 3j. 5vij.* though I knew not how much of it was vitrified, and ran through the crucible. “*Plumbum validiore igne si urgetur, specie fumi mul- “ tum perdit et pro diverso ignis gradu, vel pulverulentam, vel vitrescentem “ in scoriam, lithargyrium dictam, coloris flavi, totum vertitur.” Cramer. 1. p. 5.* “*Quando plumbum in vase terreo exponitur igni mediocri, nascitur “ mox cuticula scoriarum versicolor, tenax, aucto igne ad luculentiorum va- “ forum candescentiam; hæc cuticula tenuiter liquefcit; rejicitur ad mar- “ ginem; format scorias, quæ vocantur lithargyrium. Videtur tunc ebullire “ et fumare plumbum, perpetuoque guttulæ, scorias prioris generis referentes “ oriuntur, quæ olei instar supernatant plumbo, perpetuoque rejiciuntur ad “ priores. Si ignis sic continuatur, totum denique plumbum convertitur in “ lithargyrium.” Ibid. p. 21.—“*Scoria sub hoc processu (viz. argenti ex “ cupro per cupellationem separationem) est verum istud lithargyrium vulgare, “ venale, squamosis lamellis micaceis contextum, et si teritur, secus ac aliud “ lithargyrium, tenacitate quadam resistens. Nullum metallum est, quod “ cum plumbo in unam massam colliquefcit, et cupellas nigredine inscicit nisi “ solum cuprum. Si ergo hoc cernitur, tuto ad cupri in plumbo præsentiam “ concluditur.” Cramer. 2. p. 40.**

“Revera plumbum tantum est materia, ex qua fit lithargyrium: unde erravit Agricola et cum eo Fuxius, existimantes galænam esse materiam lithargyrii. Fit enim quotiescunque cum vena argenti erit mixtum plumbum, vel natura vel arte,” &c. *Fallop. de fessilibus*, c. 27. p. 329. . . . “Lithargyryus fit primo ex arena plumbaria. 2. Ex lapide plumbario. 3. Ex plumbeis laminis quæ in catino coquuntur, dum partim vertuntur in lithargyrium, partim in plumbaginem. 4. Ex mistura plumbi et argenti. 5. Ex mistura auri et argenti cum plumbo, ubi metalla illa nobilia pura redduntur et segregantur: plumbum vero totum vertitur in lithargyrium et plumbaginem.” *Worm. Mus.* p. 135. “Lithargyryos spumofum excrementum est è purificatione argenti quæ per plumbum fit, residuum.” *Schroder.* p. 462. “Lithargyryus spumofum excrementum metallicum est è purificatione argenti, vel potius nihil aliud est quam plumbum.” *Dale.* p. 36.

“L. vel lithargyrium plumbum est scoriis cupri imprægnatum et quasi in spumæ metallicæ formam per calcinationem redactum. Paratur dum cuprum purificatur postquam e fodinis suis, in *Polonia* scilicet, *Suecia* et *Dania* exemptum est. . . . L. auri ignem diuturniorem et vehementiorem passum est, quam lithargyrium argenti. Paucae admodum cupri scorice in iis resistent. Conficitur etiam lithargyrium, dum aurum ac argentum per cupellam seu cineritium depurantur, sed parca quantitate: hoc autem a priore non differt.” *Marg. Bib. Phar.* p. 175. vol. ii. *Savary* thinks it most probable that it is the lead used in refining copper, because the greatest part of it comes from *Poland*, *Sweden*, and *Denmark*, where copper mines are more common than silver or gold mines. Vid. *Savar. Dic.* ii. p. 561. è *Pomet.* Vid. etiam *Macq. Elem.* p. 101.—Since lead is sold for 8l. per quintal, and litharge at 10l. would it not be a beneficial trade to calcine lead into litharge? “Lithargyryus nihil aliud est quam plumbum vitrificatum vel solum vel æri permixtum.” *Geoff.* i. p. 277.

It has the virtues of lead, and is used only outwardly in plaisters, ointments, &c. Dissolved in a triple quantity of vinegar, it is the acetum lithargyrites, not different from acetum plumbi.

“Lithargyrium siccatur et refrigeratur moderatissime, adstringit, reprimat, occludit, cava explet, extergit, sarcoticum est. Præparationes easdem cum saturno, pro re nata, tamen suscipit.” *Schroder.* p. 462. Exsiccatur moderatissime, et abstergit cum modica astringitione, cava explet, ulcera ad cicatricem ducit, ad femorum intertrigines valet. In omnibus fere emplastris usurpatur, quorum corpus seu basin cum oleis constituit. Recrementa enim plumbi ab oleis et pinguibus substantiis solvuntur, et simul emplasticam consistentiam sumunt.” *Geoff.* i. p. 277.

It is prepared by repeated triturations or levigations and lotions. Vid. *Bolus Armena*. It is used in the emplastrum adhæsivum, defensivum, diachylon utrumque, diapalmæ, mercuriale; unguentum desiccativum et u. nutritum.

3. *Minium* offic. red lead, is lead by long calcination reduced to a bright or fiery red calx.

“Sandyx Dioscoridis (l. 5. c. 103. p. 364.) et Galeni (simpl. l. 9. p. 71.) Syricum et cerussa facta rubra ex adustione apud Aetium (sem. 2. c. 82. p. 75.) et Paulum (l. 7. p. 639.) sandaracha factitia, apud *Vitruvium*, et sandaracha adulterina apud *Plinium* (l. 35. c. 6. p. 832. l. 51.) unum et idem profusè sunt.”



“ sunt, viz. penitus combusta quæque per exustionem reddita est rubicunda ut  
 “ sanguis, et nihil aliud est quam minium officinarum. Vocatur *Arabitus*  
 “ asizengi hæc cerussa ex tota combusta; et est sandyx illa *Virgilii*, de qua in  
 “ bucolicis (eclog. 4. v. 43.) quand dicit,

“ Ipse sed in pratis aries jam suave rubenti  
 “ Murice, jam croceo mutabit vellera luto:  
 “ Sponte sua sandyx pascentes vestiet agnos.”

Vid. *Fallop. fossil.* c. 28. p. 332. . . . “ Melt lead in a flat earthen vessel, and  
 “ stir it until it be reduced to a powder. If you augment the fire, and continue  
 “ the calcination for an hour or two, it will be the more opened, and more  
 “ easily penetrated by acids. If this powder be calcined in a reverberatory fire  
 “ for three or four hours it becomes minium.” *Lem. C.* p. 142. But a few  
 hours will not do it. The best account that I have seen of this process, is in a  
 collection of English words, with catalogues of English birds and fishes, and  
 an account of the preparing and refining such metals and minerals as are gotten  
 in England, by *J. Ray, F. R. S. Lond.* 1674. According to this book, to  
 make minium, lead is first, in an oven or furnace, brought to a substance like  
 litharge by continual stirring: then it is ground with two pair of stones (which  
 deliver it from one to another) to a fine powder. This powder washed, is put  
 into a reverberatory furnace, and by continual stirring it, with an iron rake or  
 hoe, it is brought to the right colour in two or three days. The fire must not  
 be extreme all the time, least it should clod together, and be of a different  
 colour.

“ Ex cerussa fit in patina usta, et rudicula continuo agitata, donec colorem  
 “ minii acquisiverit.” *Worm. Mus.* p. 131. Is it any where made of cerussa?  
 Vid. *Lewis Pharmacop.*

Minium differs not in virtues from plumbumustum or lithargyrus, if it be  
 not more virulent as it is more soluble. It is used the same way.—Ingreditur  
 emplastrum defensivum, de minio utrumque: but is left out of the em-  
 plastrum anodynum, and unguentum saturninum. *Pb. Ed.* 1744.

“ Calx vel cinis plumbi et minium, sic præparantur: Plumbum in patella  
 “ terrea lata non vitreata, super carbones disposita funditur. Metallum fustum  
 “ spatula ferrea tamdiu agitetur, donec totum abeat in pulverem subnigrum  
 “ vel cinereum, qui calx vel cinis plumbi dicitur. Si paulo diutius continue-  
 “ tur ignis, pulvis flavus evadit, et a putoribus Gallico idiomate massicot  
 “ nuncupatur. Tandem in furno reverberii calcinatus, fit rubicundissimus,  
 “ et in officinis minium dicitur. Hæ plumbi præparationes humorum  
 “ acrimoniam obtundunt; inflammationem sedant, ulcera maligna corrigunt,  
 “ expurgant, et ad cicatricem ducunt.” *Geoff.* i. 275. “ Massicot is ceruss,  
 “ or white lead calcined by a moderate fire. There are three kinds of it, a  
 “ white, a yellow, and a golden, from the different degrees of fire given  
 “ them. The white massicot is of a yellowish-white, and it is that which got  
 “ the least heat; the yellow received more; and the golden massicot yet a  
 “ greater heat. Each of them ought to be an impalpable powder, weighty,  
 “ and high coloured. They are used in painting.” Thus *Lemery Dict.* p. 341.  
 and *Savary Dict.* ii. p. 694. è *Pemet.*

Our

Our *emplast. de minio* takes minii lb i. ol. olivarum lb iß. aceti lb ß. The latest *London* one is R Minii subtilissime triti lb iß. ol. olivar lb iv. but no vinegar; though in the preceding dispensatory it was made e minii ñix. olei rosarum rubrar. lb iß. aceti ñvi. which makes the best plaister. Wherein do they differ, except in colour, from the diapalma, or e. commune? The unguentum saturninum was a tedious and injudicious prescription. In the *Ed.* 1744, the process is short and easy, and the unguent is good. It is made e sacch. saturni ñij. ceræ albæ ñij. ol. olivar. lb i.—*Qu.* Is this of a right consistence? There is in the *New London Dispensatory* an ung. saturninum also, made of the same ingredients, but in different proportions; for ol. olivar. lb ß. ceræ albæ ñiß. sacchari sat. ñij. only are directed.—Of all their nineteen unguenta there is not another, except unguent. tripharmacum. that has any thing of lead in it; although seven of the fourteen plaisters have.—Is the ung. saturninum preferable to the u. nutritum?

## L E C T U R E XVIII.

### On L E A D.

4. **C**erussa, sandyx (male) offic. white lead, is lead corroded, or calcined (calcinatione vaporosa) by the fumes of vinegar, powdered and moulded into little loaves or masses, cakes or lumps.

In *Pb. Lond. ed.* 1721, sandyx is a synonymum of cerussa, as it is also in *Dale*, p. 36. But in the older edition of the *London Pharm.* sandyx is one of the recrementa plumbi factitia è cerussa more properly; for it was cerussa or *ϕαρυγγιον* calcined red, amongst all the ancients, and so not different from our minium.

The preparation of cerusse is in our pharmacop. p. 173. and almost in every chemical writer, &c. vid. *Boer. Chem.* ii. 451. where the process is at large. But thus it could not come so cheap. *Geoffroy* seems to have copied his account of it from *Dioscorides*. In the *Phil. Transact.* No. 137. p. 935. Sir *Philberto Vernati* (ann. 1678) distinctly relates how the cerusse is commonly prepared for sale, which is not in a different manner from what I observed in the white lead works at *Rotterdam*. Briefly, they 1. cast the lead into thin plates a yard long and six inches broad; then roll them round loosely, so as the surfaces may no where meet to touch. 2. They put each of these rolled laminæ into an earthen pot, like a crucible, only large enough to hold one; having at bottom a little vinegar in it, and cover it with a plate of lead. 3. The pots thus prepared, they put twenty a-breast into a square bed of new horse dung; then a stratum of pots, which being all covered with boards as close as conveniently can be, they make another stratum of horse dung, then of pots, and so on till there be four strata of pots in the heap always covered; and I think also a stratum of the dung uppermost. So the heap contains 1600 pots. Thus the heat of the dung evaporates the vinegar, which corrodes the lead. In this state they remain for three weeks; *Savary* says a month, *Diæ.* i. p. 353. As I remember, it was five or six weeks. After which, 4. the pots are taken out, the corroded lead beaten off, ground fine with water by a pair of mill-stones



going on their edges, put into moulds or pots, and dried in the sun. That cerusse may be mixed with heterogeneous substances, such as chalk or lime, cannot be denied: but whether the Dutch or English white lead is freest from sophistication I know not: Savary thinks the Dutch best (*Dict. i. p. 593.*) However, I think the question may easily be determined by washing well a sample of each with water, for it can scarcely be mixed with any thing near so heavy and cheaper than itself.

Our white lead is certainly the *Λευκός* *Dioscoridis* (l. 5. c. 103. p. 364.), *Galen.* (simpl. l. 9. p. 71. G.) and cerussa *Plinii* (l. 35. c. 6. p. 832.) “*Plim- mythium quoque hoc est cerussam plumbariæ dant officinæ.*” *Plin.* l. 34. c. 18. p. 826. It repels, dries, and cicatrises; is less absorbent than minium, but fully as noxious. It is used by some foolish women as a cosmetick; but it soon spoils the skin, teeth, and whole constitution, if it be much used.

“*Vis ei refrigerare, spiracula cutis obducere, mollire, explere et attenuare, insuperque excrescentia leniter reprimere et cicatricem inducere: miscetur ceratis et emplastris: sed ex lethalibus est.*” *Dioscor.* l. c. p. 365.

“*Nec dubitandum est quod antiquæ mulieres usæ fuerunt fuco, quia et Martialis, et Plautus sæpe nominant mulieres fucatas; et quod uterentur cerussa est auctoritas Plinii, l. 34. cap. ult. Nolitis ergo vos, ornatissimi juvenes, tam rigore reprehendere vestras mulieres, si quando utantar fuco; quoniam non est ipsarum inventum.*” *Fallop. de foss.* c. 28. p. 331. It is a part of the unguent. album, desicc. rubrum, diapompholygos, *Pb. Edin.* but in none of the ointments of the *Pb. Lond.* though the saccharum saturni is in the ung. saturninum, minium in one plaister, and litharge in seven or eight.

5. *Acetum plumbi*: This is a solution of lead in vinegar, which loses thereby its acidity, and acquires a nauseous, sweet, styptick taste. It may be made of plumbum ustum, minium, or cerusse, by digesting them in q. s. aceti, or rather sp. aceti, till it become sweet; then pouring it off; adding more, and so on: which solutions filtrated are the acetum plumbi; little differing from acetum lithargirite, *Pb. Edin.* It is of use in fretting and cancerous ulcers, excoriations, &c.—Of it with oil may be made an unguent. nutritum, called by some butyrum saturni, of the same nature with the ung. nutritum *officin.* and every way as good as the balsamum universale, or ung. saturninum.

Any of the aceta saturnina, diluted with much water, turns white; and is then called by some *lac virginale*. “*Linimentum nutritum, aut butyrum saturni, valet ad cutis pruriginem, impetigines, et erysipelata, si eo pars affecta inungatur.*” *Geoff. i. p. 279.* But it is not always safe, as is observ’d above.

6. *Saccharum saturni vel vitriolum plumbi*, is the acetum frequently evaporated ad pelliculam.

*Pharm. Edin.* orders the cerussa, minium or lithargyrus and acetum distillatum ad supereminentiam quatuor digitorum, to be evaporated ad spissitudinem mellis liquidioris, &c. Vid. *Lemer. Chym.* p. 145. *Boer. Chem.* 2. p. 455. And the latter will prevent your being imposed upon by the foolish and false reasonings of the former; whose experiments are valuable, though his philosophy is itark nought. Mr. *Geoffroy* condemns its use inwardly, but says, “*Omnibus inflammationibus medetur, sicut acetum saturni, oculorum affe- scitibus et erysipelati. Humores acres et erodentes obtundit; ulcera de- tergit exsiccat et cicatrifat. In aquis, unguentis, et emplastris permiscetur.*

“*In*

“ In gonorrhœa ubi summa est acrimonia, injectio aq. rosarum vel lactis tepidi, cum sacchar. saturni granis aliquot, felici cum successu prescribitur.” *Geoff.* i. p. 280. A bad and very dangerous practice! In such gonorrhœas a few grains by the mouth would do less prejudice.

If you would have this salt of lead whiter, it must be dissolved in p. æ aceti distillati and aquæ, filtered, evaporated and crystallized as formerly. This purification may be repeated three or four times. Cerussè is more easily dissolved in the vinegar than the other preparations of lead. Salt of lead, dissolved in water and distilled vinegar, filtered and precipitated with ol. tartar. p. d. gives the magisterium saturni, which being well washed and dried, is only a fine cerussè used as cosmetic, though it generally darkens the colour of the skin after it has whitened it. Some describe a magistery of saturn, made of plates of lead dissolved in aqua fortis, and precipitated with salt water: but lead does not dissolve in aq. fortis, so that the process is impracticable (*l'operation est impossible*). Aq. fortis corrodes some part of the calx plumbi very slowly; but it leaves a great deal of it, which it cannot dissolve. Vid. *Lem. Chym.* p. 145—150. and *Macquer Ch. Theor.* p. 102.

It is a debilitating astringent, or rather a narcotic mineral poison; yet sometimes useful in small quantities (viz. gr. i, ii, or iii.) in hemorrhages and gonorrhœas. Externally it repels, eases pain, stops perspiration, dries and cicatrises, and so does good in some inflammations, tetters, herpes, ulcers, &c. but it is hurtful in all critical eruptions. In a word, it is plumbum solubile, ad cancrosa optimum.

“ Saccharum et magisterium, intra corpus sumptum, frigiditate sua libidinem extinguit. Dosis gr. iv, v, vi. Extrinsecus arcet libidinem, si umbilicus et priapus eo inungantur: mira quoque præstat in ulceribus corrosivis, malignis, cancris, impetiginibus, ambustis ac inflammationibus. Dissolvit tumores duros et scirrhusos: applicatur commode contusionibus; confertque rubedini oculorum, in aqua rosarum et euphrasæ, vel aliis quoque impositum.” *Schroder.* p. 395.

It is extravagantly commended in many cases in *Coll. Chym. Leid. Antw.* 1702. 8vo. where, p. 405. *Le Mort* says, “ Purgat per vomitum et secessum, &c. Vocatur saccharum, sal, magisterium, vitriolum saturni. Est astringens, stypticum, sanguinem coagulans satis promptum. Interne commendatur pro remedio salubri contra hæmoptoen, hæmorrhagiam, mictum sanguinis, gonorrhœas, fluores albos, et similia, tum etiam pro mitificante remedio contra acria sanguinis, &c. ut antea.”

Mr. *Lemery* does not give the weight, or inform us how much saccharum saturni can be got from any quantity of lead. But according to *Le Mort, Coll. Chym. Leid.* p. 405. lib. i. of the best cerussè (quæ laminas plumbi adhuc representat, belgice *Schilpzwit*) may afford sacchari saturni ℥viij. vel ix. Surely then not one half of the cerussè is dissolved, if his pound be ℥xvj. But plumbi lb. i. will yield sacchari saturni ℥xxvij. and sacchar. saturni ℥xvj. by reduction plumbi ℥ix. ℥ij. for “ sacchari saturni ℥xij. distilled per retortam, s. a. yield liquoris ℥ij. there remaining in the retort, of a blackish and yellow rarified mass, ℥viij. which in a crucible may be reduced to plumbi ℥viij. leaving behind it a sort of yellow earth, which is properly a massicot, circiter ℥j. The distilled liquor, rectified by a gentle sand heat (distilling about one half



“ of it) will be an inflammable spirit like brandy, d’une goût acerbé. If after  
 “ this spirit is come over, the retort be taken out hot, and immediately broken,  
 “ the matter in it, being exposed to the air, will kindle of itself and burn  
 “ like a coal for some hours. Hence we see, that ℥ijss. of the most acid  
 “ parts of vinegar are capable of reducing plumbi ℥viijss. into a salt; what  
 “ changes acids make on it; and that vinegar retains an inflammable spirit.”  
 Thus *Lemery Chym.* p. 152.

The saccharum does not dissolve intirely in water, but turns it white, and precipitation is caused.—“ An equal quantity of water and vinegar must be  
 “ taken to dissolve it, for if water only be used, it will be rather a precipita-  
 “ tion than a solution; yet some of it remains imperceptible if dissolved even  
 “ in water,” (vid. *Lemery Chym.* p. 149.) viz. so much as the acid in the salt is sufficient to retain.

As for the balsamum plumbi, that is the saccharum dissolved in oil of turpentine, and decocted to a consistence: it is not in use in Britain, and is no better than unguent. saturninum. You may consult if you please about it, *Lemery Chym.* p. 150. *Collect. Chym. Leid.* p. 406. *Geoff.* i. p. 280. The tinctura antiphthifica is drawn with sp. vini rect. from saccharum saturni, and vitriolum martis. “ R Salis saturni, vitrioli martis artificialis āā ℥ij. sp. vini, acet. distillat. āā ℥ss. M. et per aliquot dies digerantur, liquor rubicundus  
 “ filtretur. Præter virtutem antiphthificam et hæmoptoicam, etiam in alvi  
 “ fluxibus utiliter adhibetur.” *Pb. Aug. edit. an.* 1684, in folio, p. 307.—  
 “ R Sacchari saturni, vitrioli martis āā ℥j. sp. vini gallici ℔i. Extrahatur  
 “ tinctura sine colore.” *Pb. Edin. ed.* 1722, p. 45.—“ R Sacchari saturni ℥jss.  
 “ vitrioli martis ℥j. sp. vini rectificati ℔i. Extrahatur,” &c. *Edin.* 1735 and 1744.—“ Tinctura saturnina. R Sacchari saturni vitrioli viridis āā ℥ij. sp.  
 “ vinosi rectificati ℔ij. Sales separatim in pulverem redacti in spiritum in-  
 “ fundantur; deinde digere sine calore et per chartam cola.” *Pb. Lond.* p. 91. If p. æ salis saturni and vitriol. viridis be powdered together in a glass or marble mortar, and long rubbed, they, without any addition, will be reduced into a dark-coloured soft paste (*en une pâte liquid brune*) which if then dissolved in sp. vini, the solution will be of a red colour, and precipitate a whitish powder. *Lemer. Chym.* p. 148. It is evident which of the tinctures has most of the lead. But what does the spirit dissolve of it? [c]—Mr. *Geoffroy* makes his tincture antiphthifica, vel tinctura martis astringens, ex vitrioli martis ℥j. terræ foliatæ tartari ℥ij. and sp. vini rectificati ℥iv. rejecting altogether the saccharum saturni as noxious. Vid. *M. M.* i. p. 294.

[c] The tinctura saturnina, *Pb. Lond.* or tinct. antiphthifica, *Pb. Edin.* is an improper combination; the vitriolic acid of the green vitriol which is employed decomposes the sugar of lead, and converts the lead into an inert and insoluble calx. If the proportion of green vitriol be double of what it now is, the tinct. saturnine could contain no lead. The tinctura antiphthifica, *Pb. Edin.* contains more sugar of lead than the tinct. saturnina, *Pb. Lond.* from its having a small proportion of the green vitriol.

The decomposition of the sugar of lead be-

comes obvious immediately on adding the green vitriol, and triturating them together in a mortar; the vegetable acid is perceived to escape in a very pungent and volatile form.

It affords us an instance of a decomposition by double elective attraction. The lead attracts the vitriolic acid more strongly than the vegetable, and the vegetable acid attracts the iron more strongly than it does the lead.

Might not the poisonous effects of sugar of lead be obviated by vitriolic acid?

You have, in Mr. *Geoffroy's M. M.* i. p. 280. *Mumia mineralis Poterii*. It is an amalgama hydragyri, p. 2. and plumbi, p. 1. digested in a sand heat till it becomes yellow. He recommends it not only for the scabies and other diseases of the skin, but also for ulcera callosa, and strumæ; yea, he adds, "Canceris quoque medetur, modo ad ultimum gradum non pervenerint. Caute tamen et pariori manu adhibenda est, præsertim in exulceratis carcinomatibus, ne uberius nimis fiat suppuratio. Si nondum suppuratum sit carcinoma mumie mineralis 5j. cum emplastri magnetici angelæ salæ 3j. accurate misceatur, et tumori admota illum sensim resolvit. Si vero exulcerari incipiat, tenue penicillum è linamento paratum et hac mumia, vel sola vel myrrhæ admista, conspersum in ulcus immittatur, superimposito emplastro magnetico supradicto. Tumor durus sensim leni suppuratione dissolvitur, et tandem ceteris presidiis internis adhibitis, carcinoma sanatur." *Credat Judæus appella, non ego.*

## LECTURE XIX.

## ARGENTUM.

## SECT. I.

**A**RGENTUM; luna, offic. Argentum, *Worm. Mus.* p. 115. *Aldrov. M. Metal.* 72. *Charl. fossil.* 45. *Dale*, p. 35. Silver.—This, 1. is in weight to water as 10535 (11087) to 1000; so that it is lighter than lead. Cramer seems to make their specific gravities equal, when he says, "Argentum in aqua  $\frac{1}{11}$  vel  $\frac{1}{11} \frac{1}{2}$  sui ponderis perdit; et plumbum levius fit in aqua suspensum  $\frac{1}{11}$  ad  $\frac{1}{11} \frac{1}{2}$ ." Vol. i. p. 4, 5.—2. Is nearly as fixed in the fire as gold, and melts with much the same degree of heat. "It always runs so soon as it is red hot." Vid. *Hill's M. M.* p. 35. *Sed errat.*

"Bimestri spatio fustum in oculo furni vitriarii vix  $\frac{1}{12}$  partem amisisse fertur; sed an & tum sincerum fuerat?"—3. In ductility it comes nearest to gold.—4. Aqua fortis only dissolves it, not aq. regia.—5. It resists lead, but not antimony. Vid. *Boerb. Chem.* i. p. 37. and *Cramer* i. p. 4.

Silver [a] is found, 1. In its metallic form, in threads, scales, plates, grains, lumps, &c. Or, 2. In its proper ores, where it makes the greatest part of the

[a] Silver is found

A. Native, or pure silver. *Argentum purum nativum.*

1. Thin superficial leaved. *Argentum lamellatum.*

2. Of a branchy form. *Argentum ramosum.*

a. Of coarse fibres. *Ramis crassioribus.*

b. Of fine fibres. *Tenuioribus capillaribus.*

c. Of a vegetable form. *Infusarvegetabilium.*

d. Of a crystalline form. *ChrySTALLISATUM.*

B. Mineralized silver. *Argentum mineralisatum.*

I. With sulphur alone. *Argentum sulphure mineralisatum. Minera argenti vitrea.*

a. Thin leaved. *Lamellatum.*

b. Grown into. *Vegetans.*

a. Round spires. *Ramis teretibus.*

b. Crystalline figures. *Ramis polyedris chrySTALLINIS.*

II. Mineralized with sulphur and arsenic. *Argentum sulphure & arsenico mineralisatum. Minera argenti rubra.*

1. Greyish red. *Cynereum rubrum.*

a. Lamel-



the metal they contain: Or, 3. In the ores of other metals, as lead, tin, &c. For though it is found sometimes pure and malleable, it is much oftener mixed with other metals and minerals.

*Wormius* describes several specimens of native silver variously figured, of which one, "Vitem ramis suis varie diffusum emulatur." Another, "Vitem quodammodo referens, frondium et furculorum miris plexibus luxurians." A third, "Cornu cervinum emulans, purum putum sine omni lapidis aut venæ permissione, eleganter divaricatum, suisque ramulis et furculis juxta extremitatis donatum." Vid. *Mus.* p. 116. *Cram.* i. 225—227.

"Grandes argenti massæ sunt erutæ ex nonnullis fodinis, una è Snebergi Georgio, cujus videndi gratia, cum *Albertus* Saxonix princeps, vehemens ille bellator, in fodinam descendisset, ea cum stipatoribus corporis pro mensa usus, dixisse fertur, *Fredericus* imperator potens et dives est, hodie tamen ejusmodi mensam non habet." Vid. *Agricola* (fossil l. 8. p. 641.) The weight of this mass is said to have been 400 quintals, or 4000lb. that is worth 160,000l. sterling. Vid. *De la Chambre's Pu.* tom. iii. p. 195. *Wormius* mentions a piece found in the Norway mines, of which were made 3000 daleri, which are equal to five talents. For the various kinds of silver ores, vid. *Cramer* i. 221.

Though there are silver mines in each of the four parts of the world, but the American furnishes the greatest quantity of this metal: they seem to be inexhaustible. The mines of Potosi are wrought almost with equal success as they were when the Spaniards first (in 1547. *Cluver.* p. 424.) discovered them: only at first the veins were found almost on the surface of the earth, but now they must be followed to a frightful depth. The ore is of different colours, consistence, and fineness. There is a white and grey ore, spotted with red and blue; a black iron-coloured ore, so rich as not to need quick-

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|---|---|
| <p>a. Lamellated. <i>Lamellatum.</i><br/> b. Thick. <i>Compactum.</i><br/> 2. Red.<br/> a. Lamellated. <i>Lamellatum.</i><br/> b. Thick and scaly. <i>Compactum et micaceum.</i><br/> c. Crystallized. <i>Crystallifatum.</i><br/> III. With sulphurated arsenic and copper. <i>Argentum arsenico &amp; cupro sulphurato mineralifatum.</i> <i>Minera argenti alba.</i><br/> a. Friable or decayed. <i>Pulverulentum.</i><br/> b. Solid. <i>Solidum.</i><br/> IV. With sulphurated arsenic and iron. <i>Argentum ferro &amp; arsenico sulphurato mineralifatum.</i> <i>Pyrites arsenicalis argento gravidus.</i><br/> V. With sulphurated antimony. <i>Argentum antimonio sulphurato mineralifatum.</i><br/> a. Of a dark grey and somewhat brownish colour. <i>Atrociniū &amp; quodammodo fuscum.</i><br/> b. Of a blackish blue colour. <i>Atro cæruleum.</i><br/> a. In the form of capillary crystals. <i>Minera argenti antimonialis capillaris.</i></p> | <p>VI. With sulphurated copper and antimony. <i>Argentum cupro &amp; antimonio sulphurato mineralifatum.</i><br/> a. Solid. <i>Solidum.</i><br/> b. Crystallized. <i>Crystallifatum.</i><br/> VII. With sulphurated zinc. <i>Argentum zinco sulphurato mineralifatum.</i><br/> 1. Of an obscure metallic appearance. <i>Splendoris metallici obscuri.</i><br/> a. Solid. <i>Solidum.</i><br/> b. In the form of balls. <i>Rotundatum.</i><br/> 2. Black. <i>Nigrum.</i><br/> a. Solid and fine scaly. <i>Solidum informe micis pervis.</i><br/> b. In form of bells. <i>Rotundatum.</i><br/> VIII. With sulphurated lead. <i>Argentum plumbo sulphurato mineralifatum.</i><br/> IX. With sulphurated lead and antimony. <i>Argentum plumbo &amp; antimonio sulphurato mineralifatum.</i><br/> X. With sulphurated iron. <i>Argentum ferro sulphurato mineralifatum.</i></p> |
|---|---|

silver,

silver, but is refined by fusion with lead only; also one that shines like talc; another of a yellowish red; another green, &c.

In the mine Catamito, at Potosi, the silver is in threads, so interwoven as to resemble burnt lace, and hence is called *arannea*. The veins are richest in the middle; but still richer in that part where two veins happen to intersect one another. It is a rich ore, which yields a fifth part of silver. It is incredible how many millions of poor Indians have been lost in these mines; yea how many die there every year. The damps do great mischief; and the kneading the ore with quicksilver is so noxious that only slaves are employed in it. Vid. *Savary Dict.* i. 134 and. ii. 1094. He says the silver is there separated from the mine much the same way as gold is, only *salis fossilis*, p. 1. is added to *argenti vivi*, p. 4. In the town of Potosi are above 10000 Spaniards, 60000 Indians, and sometimes 120 ore-mills. *Id.* l. c. But according to the nature of the mine, as it is more or less fluxile, &c. the process of separation must be varied. Vid. *Pb. Transf.* No. 41. p. 817. or their Abridgment, vol. ii. p. 589. whence Mr. *Geoffroy* takes a long paragraph (i. p. 308.) without quoting his author. — For the different ways of refining and purifying silver, you may consult *Cramer*, ii. p. 1—84. or *Macquer Chym. Prat.* i. p. 153. to p. 201.

The fineness of silver is expressed by denarii, or pennyweights, each of which is divided into 24 grains. Absolutely pure silver, is called silver 12 pennyweights fine; but such is not easily obtained: for copelled silver is reckoned only xi denar. xxi gr. or denarii  $11\frac{2}{3}$  fine; and plate silver is of denar. xiii. The British standard has 18 pennyweights alloy in  $3xij$ . It requires the reduction of luna cornea, or the repetition of the process by precipitation, to bring it to its utmost purity. Vid. *Macq. Chem.*

“Argentum non a plumbo destruitur sed ab antimonii parte (1) sulphurea. “Igne diuturniori et vehementiori minuitur (2) et consumitur. Lentis vitreæ majoris foco expositum, tum super testam, tum super carbones, in fumos dissipatur totum, sed tarde admodum, et non nisi post longum temporis intervallum; non vero in vitrum convertitur sicut cætera metalla; ex eo quod sulphureum principium a quo metallorum ductilitas, splendor et opacitas pendent, cum terra metallica tam arte conjungatur, ut prius avolent metallicæ partes, quam in sua principia dividi possint. Argenti ab omni alio metallo purati solutio limpida est, ejusque crystalli nullo colore donantur. Si vero æris nonnihil contineat, tincturam subviridem, vel subcæruleam exhibent. Crystallorum lunarium sapor est intense amarus. Argentum cum sale communi, quocunque modo, permixtum, in massam funditur semidiaphanum et quasi corneam, quæ ea de causa luna cornea dicitur, quæ quidem in argentum difficile reduci potest, cum volatilis sit; si enim igne vehementi urgeatur, fere tota in auras avolat.” *Geoff.* i. p. 310. N. B. Errores! In the preceding page (viz. 309.) where he repeats the process of refining silver by the copel, he says nothing of cutting this; but p. 277, we have “Alveum in latus secant, plumbumque vitrificatum labi sinunt in humum, fitque hoc modo lithargyrus.”



## S E C T. II.

Silver is commended as cephalic in vertigoes, apoplexies, epilepsies, and other diseases of the head. But while it retains its metallic form, it has no more virtue inwardly taken than gold.

“Argentum metallum est nobilius, candidum, auro imperfectius. Dicitur chymicis luna vel cerebrum, eo quod in macrocosmo lunæ, in microcosmo cerebro, sympathicum sit. *Vires*. Capitis corroborans perhibetur specificum, spiritusque animales confortare, unde in omnibus capitis affectibus peculiaris efficaciam censetur, quales imprimis epilepsia, apoplexia & similes.” *Schroder*. p. 379—383. where you have 1. the argenti purgatio, per calcinationem immersivam cum plumbo, & per nitrum. 2. Solutio & extractio, unde lunæ potabiles & tincturæ. 4. Salificatio.

“Argenti usus internus minus tutus est, cum acido fortiore in primis viis in vitriolum corrosivum vertitur.” *Nucl. Belg.* p. 28. — “De insigne illa virtute cephalica & corroborante non satis nobis constat: neque etiam hocce metallum pretiosum omni prorsus virtute carere asserere audemus.” *Geoff.* i. 311. But as I am not in the least afraid of its corrosion taken in substance; so I have the assurance to assert, that it has as little virtue in diseases of the head, as gold has in those of the heart, that is none at all when undissolved. For, 1. It is dissolvable only in sp. of nitre or aq. fortis, which it cannot meet with in our stomachs: nor is mercury there to amalgamate it; and if there was, the amalgama would be as undissolvable by any acid to be found in the primæ viæ as the metal itself. 2. Dissolved, indeed, silver is violently cathartic; and in this it differs from gold. Hence its caustic quality does not depend solely on the acid menstruum, nor on the specific gravity of the metal, nay nor on both together. 3. Its cephalic virtues are not confirmed by experience.—The ancient Greeks made no use of silver in medicine. The Arabians first introduced it: and the enthusiastic chymists, so long as they prevailed, supported its credit.

## S E C T. III.

The dose therefore foliorum vel limaturæ need not be determined. The leaf may be used to cover pills, &c. in place of gold-leaf. A salt, caustic, and tinctures are sometimes prepared from it; but the caustic only is in use here.

The folia are used in some Arabian compositions, as electuarium de gemmis *Mesue*; as the limatura is in the electuarium lætitiæ *Galen*i, of *Nicolaus*, though no such composition is to be found in *Galen*. Vide *Fallop. de compos. med.* c. 47. p. 190. and c. 51. p. 192. However the French use the folia still in their confectio de hyacintho and pulvis lætificans, both pretty complex and confused compositions. Vide *Cod. Medicam.* p. 77. & 72.—The chief preparations of this metal are, 1. Sal, vel vitriolum lunæ; which is silver dissolved in aq. fortis, evaporated and crystallised, f. a. It is a violent caustic, and may be so used,

but I do not think the internal use of it safe: though "It is given also in dropsies and diseases of the head, from gr. i. ad iij in some proper water," according to *Lem. Chym.* p. 108. (where see the process at large, and in *B. Chem.* ii. p. 462.) It must be an obstinate disease that requires it; and the salt must be well diluted and covered to be safe. I would not adventure on gr. ß, which is *V. Swieten's* dose of the corrosive sublimate, now found both safe and successful in morbis difficillimis. And perhaps the vitriolum lunæ, if managed his way, might deserve the same character. Can it be sublimed? or sweetened by sublimation?—It is said to be excessively bitter.

The luna purgans Angeli Salæ, *i. e.* hydragogum argent. *Boylei vel Angeli Salæ* (*B. Chem.* ii. p. 467.) is this sal. lunæ and nitrum aa p. æ. separately dissolved in water, then mixt, crystallised and well dried over the fire to separate the superficially adhering acid. Thus it is diluted and weakened; but still caustic, and too dangerous to be recommended.

"Si illius paucillum ulceribus apponitur, effectus præstat ut lapis infernalis, sed longe blandiores. Si vero ejusdem gr. ij. cum sacchari conici gr. vj. in mortario vitreo teruntur minutissime, dein gr. x. pastæ panis admiscetur indeque formentur catapotia novem. Hæc adulto jejuno deglutita, si statim bibitur desuper aqua mellita callida ad ʒiv. vel vj. purgabunt lenissime per alvum, educendo liquidam aquam, sæpe fallentem, quia vix sentitur exeuns, utentes. Necat lumbricos, tænia & ascarides. Curat multa inveterata ulcerosa hydropicos levat purgatos sine torminibus. Cavendum a nimio usu, a nimis larga dosi cavendum. Rodit semper, & labefactat, ventriculum imprimis: quod vitii rob. juniperi baccarum sanat." *B. Chem.* ii. 468.—Mr. *Geoffroy's* luna hydragoga, vel vitriolum lunæ purgans being made of the crystals of argenti ʒj. and nitri ʒj, and without ustulation over a fire, must be more caustic than the former, and yet his dosis est a gr. iij. ad viij. Commendatur in paralyti, in hydrope ascite. In tenuissimum pulv. redactæ crystalli & cum mica panis pistæ, in pilulas redigantur, quæ pilulæ lunares *Boylei* dicuntur, & in hydrope aquas potenter educunt." *Geoff.* i. 311.

2. Causticum lunare & lapis infernalis *offc.* which is a solution of silver in aq. fortis dried, melted and moulded; and so differs from the crystals only so far as the humidity is driven away, and the calx and acid more intimately united by fusion, which separates also some of the acid. *Cl. Boerhaave* prepares it of the crystals, vide *Chem.* ii. p. 465. But crystallisation is not necessary, nor commonly practised.

"If one ounce of pure silver be taken, there will be caustici ʒj. 5v." *Lem. Chym.* p. 110. It never spoils, and therefore is called causticum perpetuum; neither is any of the silver destroyed, but every grain may be easily got again from it. This solid acid of nitre adhering to the silver, exposed to the air attracts its humidity and melts, being siccatis impatiens, as well as fixed alcalies are. The lapis infernalis of the old *London Pharmacop.* was the same with lapis septicus, or common caustic, which in the *New Dispensatory* is omitted, and a much weaker one substituted in its place, (*i. e.* causticum commune fortius) as this is causticum lunare, which is the lapis infernalis here, in France, Holland, &c.

This is the most usual caustic for imposthumes, making issues, consuming excrescencies, warts, cleaning foul ulcers, &c.

VOL. I.

R

" Lapis



“ Lapis ille infernalis cauterium potentissimum solo attactu, uno momento, in escharam comburit partes calidas, humidās, corporis. Sub hac eschara natura molitur inflammationem quæ illam separando crudam, puram partem reddit. Quo repetito, sæda fungosa, cancerosa superficialia, pulcherrime tolluntur.” *B. Chem.* ii. p. 466. [b]

3. Tincturæ lunæ variæ. None of them are in use here; and it may be doubted whether a tincture can be drawn from silver. They are of a sapphirine colour, and drawn by sp. vini assisted by an urinous salt, which cannot act on silver, but only on the copper in it. Hence it is only a tincture of copper. Vide *Lem. Chym.* p. 112—17.

Though perhaps there may be some silver in the tincture, as he says there is, yet the colour is not owing to it, for absolutely pure silver gives no colour: But how can this be known, when the purest silver is said to contain some copper? By the deepness of the tincture? But the tincture of plate-silver is sapphirine. “ Quædam lunares tincturæ sapphirinæ vel cæruleæ a chymicis, mirum in modum prædicantur. Sed sunt potius tincturæ veneris, quarum usum internum minus tutum censemus. Argenti autem tinctura omnino diaphana est (that is a tincture without a tincture) seu crystallina, cujus virtus mihi adhuc incomperta est.” *Geoff.* i. p. 312. where you have a receipt of a water for dying the hair black.

## C U P R U M.

### S E C T. I.

Cuprum, *Æs*, Venus, *offic.* *Æs*, *Worm. Mus.* 120. *Aldrov. Mus. Metal.* 97. Cuprum, *Dale* 36. *Æs* vel cuprum vulgare, *Geoff.* i. p. 299. Copper. This is a harder metal than silver, of a red or yellow colour, and styptic vitriolic taste and fætid smell, found most commonly in an ore.

Copper (α) in weight is to water as 8843 is to 1000, or loses near an eighth, or more than a ninth part of its weight in water: (β) It loses considerably in the fire, much flying-off in fumes as well as calcining into scorix: (γ) Is ductile next to silver: (δ) Is the most sounding, or rings loudest of all the metals, and pretty elastic: (ε) It turns red-hot in the fire, before it melts, and gives the fire a fine bluish green colour: (ζ) In fusion it cannot suffer water nor any cold thing to touch it.

[b] There are few metals which act as medicines, unless they are combined with acids, so as to be rendered soluble in our fluids; this is the case with silver, whose menstruum is more especially the acid of nitre; however the salt produced by their combination is so corrosive that its use is chiefly confined to external application, when it acts as a very powerful caustic. Its internal use in that form, though diluted to a considerable degree, can be seldom employed with safety.

Metals form in general more corrosive compounds with the fossil than with the vegetable acids: and as the accurate *Margraaf* has taught us how to unite silver as well as most other metals with vinegar, a more safe, and a more efficacious medicine may be thereby prepared.

The precipitates of silver from the nitrous acid by alkaline salts are soluble in vinegar in a very great proportion. *Margraaf. Opuscul. Chymic.* vol. i.

“ Si

“ Si lapillus vel lutum vel lignum vel carbo madidus, in æs adhuc fufum in catino inciderit, tum catinus fremens instar tonitru, omne æs contentum evomit, & quicquid tetigerit kredit & incendit.” *Magnet. Bibl. Pharm. (Genevæ 1703, 2 vol. folio) vol. i. p. 17. Cramer. ii. 172. (n)* It is easily corroded and dissolved by every salt or saline substance; the air, water, and oils turn it rusty. “ Ab omnibus salibus, & iis quæ salia continent, applicatis, arroditur, maximam colorum varietatem imprimis pulcherrime viridem, vel cæruleum, ostentans.” *Cramer. i. p. 4. (θ)* Lead calcines it as well as antimony. “ Valde facile cum plumbo & antimonio, in scorias, vitrumve versum, a testa in fumos, vel per testam abit.” See *Cupri Notas. B. Chem. i. p. 38.*

Copper is found sometimes, as is said, in form of a metal, or malleable, though not so malleable as art can make it; this is called *cuprum nativum*. But more commonly in ores, of various colours and consistences, mixed with other metals and minerals, of no regular figure, called *mineræ æris vel cupri*. There are blue, green, yellow, white copper-ores; some more some less fluxile, all containing less or more iron. Rich ores contain per cent. from 50 to 60 lb. of metal. Copper is found in vitriol and vitriolic waters also. [a]

“ Vidi ego in fodinis duplex metallum purum, argentum, sc. atque æs purissimum; & observavi hæc metalla concrefcere capillorum modo, & eo

[a] Copper is found in the earth.

A. Native, or in a metallic state. *Cuprum nativum*. Virgin copper.

1. Solid. *Solidum*.

2. Friable, in the form of small coherent grains. *Cuprum nativum particulis conglomeratis distinctis*.

B. In the form of calx. *Minera cupri calciformis*.

1. Pure. *Minera cupri calciformis pura*.

a. Loose or friable. *Ochra veneris*.

α. Blue. *Cæruleum montanum*.

β. Green. *Viride montanum*.

γ. Red. *Efflorescentia cupri*.

b. Indurated. *Indurata*. Copper glass.

α. Red. *Minera cupri calciformis pura & indurata, colore rubro*.

2. Mixed. *Minera cupri calciformis impura*.

a. Loose or friable. *Ochra veneris friabilis impura*.

1. Mixed with a calcarious substance.

2. Mixed with iron.

b. Indurated. *Minera cupri calciformis impura indurata*.

1. Mixed with gypsum, green.

2. Mixed with quartz, red.

3. Mixed with lime-stone, blue.

C. Dissolved and mineralized. *Cuprum mineralisatum*.

1. With sulphur alone. *Cuprum sulphure mineralisatum*. Grey copper ore.

a. Solid without any certain texture. *Minera cupri sulphurata solida, textura indeterminata*.

b. Fine cubical. *Tessulis constans minoribus*.

2. With sulphurated iron. *Minera cupri pyritica*. Yellow copper ore.

a. Blackish grey, inclining a little to yellow. *Pyrites cupri gryseus*.

b. Reddish yellow, or liver brown, with a blue coat on the surface. *Minera cupri lazurea*.

c. Yellowish green. *Pyrites cupri flavo-viridescens*.

1. Solid, of a shining texture.

2. Steel grained, of a dim texture.

3. Coarse grained, of an uneven shining texture.

4. Crystallized, of long octoedrical crystals.

d. Pale yellow. *Pyrites cupri pallide flavus*.

e. Liver coloured.

3. With sulphurated arsenic and iron. *Cuprum ferro & arsenico sulphurato mineralisatum*.

4. Dissolved by the vitriolic acid. *Cuprum acido vitrioli solutum; vitriolum veneris*.

5. With phlogiston. Copper coal ore.

A. The vegetable acid may be separated from the crystals of copper by the force of fire alone, and is obtained in a very volatile and concentrated state. It is then inflammable, and when united with alcohol by distillation, yields an æther in a larger proportion than even the vitriolic acid. For this discovery we are indebted to M. le Comte de Laureguais.



“ modo penitus quo situs efflorescit in superficie pomi putrefacti.” *Fallop. fossil.* c. 11. p. 296. “ *Æs* nativum sine excoctione purum est, & in metallis ærariis & argentariis reperitur; quod tum veteres, imo ipse *Albertus Magnus*, ignorasse videtur. Invenitur quandoque bractearum modo lapidem amplectens. Effoditur etiam, *Agricola* teste, varia figura, stiriarum scil. virgularum, globulorum, massulæ. Quod ego teneo laminarum planarum ex minutissimis quasi granulis constatarum figuram obtinet: colore rubicundo & vere æroso, admodum fragile.” *Worm. Mus.* 121.

“ Cuprum nativum hoc est, in forma metallica longe crebrius ac magis perfectum invenitur, quam ferrum. Malleabilitate tamen id cupro bene excocto quodammodo adhuc cedit. De cupri mineris in genere notandum, quod nulla earum per certam quandam figuram sese distinguat, sed irregulares penitus sunt omnes. At vero pulcherrimi cujuscunque generis colores, solos si exceperis diaphanos & rubrum. Cupri præsentiam plerumque indicant, ubi in minera observantur. Dein vix ulla habetur cupri minera, quin ferrum eidem sese immiscuerit largius quam in aliorum metallorum mineris solet. In quibusdam tamen longe minor ejusdem est copia quam in aliis. Istas autem quibus parcius adjunctum est ferrum, facilius per se fluentibus adnumeramus. Talis sunt minera cupri vitrea, &c.” *Vide Cramer.* i. p. 208—213.

There are many copper-mines in Britain, Norway, Poland, Germany, Hungary, &c. but Sweden in Europe, Japan in Asia, and Lima in America, abound most with this metal. *Sav. Dictionary* i. 1629. And according to the nature of the ore the process of separation varies. *Vide Cramer* ii. 143—183, and *Geoffroy* i. 299—302. where you have the experiments, whence he concludes, “ Cuprum non mediocrem sulphuris combustibilis portionem continere, licet non tantam, quanta in ferro continetur; metallicam vero substantiam esse terram rubram seu vitrescibilem.”

“ All about Newfol are the greatest copper-mines in all Hungary; but the ore is burnt and melted fourteen times before it produces copper fit for use. They get some silver out of copper. The ore of *Herrn-grundt-mine* is very rich, yielding commonly lb 20 of copper, sometimes 30, 40, 50, and even 60 in the 100.

“ This mineral produces white, green and blue vitriol: and a red clear transparent, as also a green sediment of a green-water, called Berg-green, used by painters. Here are also found stones of a beautiful green and blue colour, and one sort upon which turcoises have been found, called therefore the mother of turcois. But above all the rest, there are two springs of vitriolate water here, called the new and the old Ziment, which turn iron into copper in fourteen days time, even the most useless iron into the purest copper, much exceeding in goodness that of the ore, very malleable and easily melted. I have melted it without the addition of any other substance. I took a good quantity of this copper out of the old Ziment, and among the rest a piece of the figure of a heart, which had been laid in it eleven or twelve days before, having the same figure, but as perfectly iron then, as it is copper at this day. (After his reasons for believing it a real transubstantiation, he adds) I have since seen such a transmutation attempted by art, and not without good success.—At parting we drank out of a cup made of this trans-

“ muted.

“muted iron, gilt over, and having a rich piece of silver ore fastened in the middle of it, with this inscription engraven on the outside, *Eisen ware ich*, &c. *i. e.* Copper I am; but iron was of old: Silver I carry, covered am with gold.—The yearly profit arising to the Emperor from his mines is computed at 120,000 l. sterling.” Thus Dr. *Brown* (*Harris’s Collect.* ii. p. 516.) Mr. *Geoffroy* mentions a fountain which not only turns iron into copper by precipitation, but also oak-leaves. “*Sic quercus folia in hunc fontem ferte delapsa, post aliquid temporis spatium ærea extrahuntur.*” *M. M.* i. p. 301.

## L E C T U R E XX.

## O n C O P P E R.

**Æ**S flavum, orichalcum, vel aurichalcum, yellow brass is copper so impregnated with the vapour of zink, as to be considerably increased in quantity, and its colour changed, its malleability still remaining. According to *Cramer* cupri lb xl. or p. ij. pulveris carbonum & lap. calaminaris aa lb lx. or p. iij. Also in powder, cemented and fused, will give orichalci lb liij. +  $\frac{1}{3}$ , sometimes only 1 lb. according to the nature of the calamine, &c. which change may also be effectuated by some cadmiæ fornacum, especially *tutia offic.* and yet zincum melted and fused with copper destroys its malleability.

“*Mineræ zinci, e. g. lapidis calaminaris in pulverem redacti p. 1½ carbonum comminutorum tantundem, misce terendo, & aqua leviter humecta: hac miscela vas quoddam fusorium imple, inter & supra pone laminarum cupri purissimi p. i. iterumque pulverem carbonum super insperge, & colloca in furnum anemium, largiterque carbones obrue, quibus lente accensis, dum ignis augeatur, ut candescat vas: quando flammam cernis colore cærulescente viridi vel purpureo tinctam, explora subinde filo forti ferro, an liquifacitum sub pulvere carbonum sit cuprum; quod igne longe minori, absolvitur, quam cuprum per se exigit ut fundatur: temporetur tum ignis ne intensior fiat; denique fusione adhuc aliquantulum protracta, auferatur vas ex igne, ut sponte frigescat, vel massa intus contenta, si major moles est, effundatur in receptaculum modici calidum, siccum: deprehendes si cuprum frangis, id aureo colore tinctum, nec non insigne ei pondus accrevisse, aliquando  $\frac{1}{4}$  ad  $\frac{1}{3}$  ponderis adhibiti cupri æquans, malleabilitate in frigore remanente perfecta: verum quo magis id ad ignem incalescit, eo fragilius evadit; ita ut mediocriter rubescens, spathula lignea, aut si modo rudius apprehendatur, facile in frustula divellatur, tenacitate omni exuta.—In hoc processu cuprum, vaporis specie, a zinco penetratur, zincum in eo figitur: quod ex eo patet, quia si cupro per lutum interpositum via præcluditur, quin ad mixturam in vasis fundum descendere possit, attamen ejus consistantia, color, habitus in igne mutatur, & pondus augetur; ut ideo certum sit, sublimatam materiem is hæc efficere. Carbonum pulvis hic & cupri combustionem avertit, & impedit quo minus zincum, a cupro receptum, liberius iterum dissipetur & comburatur. Præter lapidem calaminarem.*”



“ narem dantur varia composita factitia, quæ simili modo cuprum flavedine,  
 “ cum ponderis incremento, tingunt, quales sunt cadmiæ fornacum, verum  
 “ non omnes; sed istæ solummodo, quæ a mineris zinci, vel metallis, quæ  
 “ zincum ingreditur, compositis oriuntur.—Hujus species elegantissima, pu-  
 “ rissima est tutia offic. Mirum est quod ipsum zincum, cupro simpliciter col-  
 “ liquefactum, omnem huic malleabilitatem adimat uti id experiri licet in  
 “ metallo *Principis* dict. cum tamen id ipsum vapore tenuis applicatum, ean-  
 “ dem non tollat.” Vide *Cramer* ii. p. 245—251.

“ Cupri solutio ab acidis salibus & ab alcalinis fixis viridis est; verum ab  
 “ urinosis cæruleo colore elegantissimo inficitur.” *Geoff.* i. 301.—Vide *Cra-*  
*mer* ii. p. 83. §. 4.

Some derive æs, quasi *αἰς*, ab *αἰσθ*, fulgeo, ob splendorem; others ab *ἄσπ*, ensis, and so on. But, says Mr. *Lemery*, “Æs ab aere; because copper  
 “ when it is beaten strikes the air with force, and makes a great noise and  
 “ sound.” *Diēt.* 10. Excellent!—Cuprum quasi æs cyprium; aurichalcum  
 quasi aureum æs; vel orichalcum, *i. e.* æs montanum.

If a solution of copper in a vitriolic acid be precipitated with iron, the pre-  
 cipitat will have the form and splendor of a metal (*la form & la brillant me-*  
*tallique*) and does not require any farther phlogiston to bring it to true cop-  
 per; which is necessary in precipitations by alkaline earths or salts. Vide  
*Macquer*, *Chym.* i. p. 115.

## S E C T. II.

Copper in its metallic state, *v. gr.* in filings, has as little effect inwardly  
 taken as gold or silver: but dissolved it is so strongly styptic as to be reckoned  
 an escharotic, though not properly corrosive; it is also a most speedy emetic;  
 but is not narcotic. Externally it stops bleedings, discusses superficial inflam-  
 mations, dries ulcers, and represses fungous excrescences.

“ Dicitur venus, quod cum venere cœlesti in macrocosmo, cumque geni-  
 “ talibus partibus in microcosmo sympathiam obtineat. *Vires.* Præterquam  
 “ quod partes generativas peculiariter confortare creditur, variis abundare fa-  
 “ cultatibus æstimatur; adeo ut sint qui dicere non vereantur, nullum metal-  
 “ lorum salubriorem spirare auram quam cuprum. Et hinc majoribus, &  
 “ præcipue Hippocrati, præter reliqua, frequentissimo in usu fuit. Nos, re-  
 “ lictis cupro crudo, preparationes libabimus, quæ sunt 1. Purificatio. 2. Cal-  
 “ cinatio, reverbatoria, immersiva, vaporosa unde ærugo seu viride æris, illi-  
 “ nationis, cementatoria unde crocus. 3. Distillatio. 4. Extractio. 5. Sali-  
 “ ficatio. 6. Sublimatio.” *Schrod.* 390—394.

*Hippocrates* frequently orders aeris flores, limata scobs, squama, ærugo, æs  
 ustum, externally; and some of them sometimes internally also; thus lib. 1.  
*De Morbis Mulier.* we have a potio ad puerum in utero mortuum, & vitia  
 quæ intus sunt, “Æruginem (*ιονχαλκς*, says he) tritam cum melle, & syr-  
 “ mæa potui exhibeto.” *Foes.* p. 626. l. 37. It is uncertain what is meant  
 by syrmaea, a *συνω* traho: some make it a plant, *apium*, *raphanus*; others salt  
 and water. “Æs ustum facit & vomitiones, ex hydromelite potum, aut  
 “ cum melle delinctum, illitumve. Flos aeris quaternum obolorum pondere  
 “ datus,

“datus, crassios humores extrahit.—Squama æris pota ex aqua multa, aquas subducit. Aliqui cum farina subacta exhibent in catapotio.” *Dioscorid.* l. 5. c. 87—89. p. 354. Vide also *Galen* l. 9. *Med. Fac.* p. 69—71.

“Æs est venenum producus rufus, nauseas, vomitus, hypercatharres. Ærugo est venenum fere sicuti æs, sed fortius.” *Nucl. Belg.* p. 8. Æs inter venena recensetur præsertim ærugo. Edulia enim, vel etiam aqua, aliquamdiu in cupreis vasis servata, admodum noxia evadunt. Ventriculi & intestinorum dolores & tormina, vomitiones enormes, frequentes & inanes deijciendi conatus, intestinorum exulcerationes, interdum anhelitus difficultatem & spasmodicas membrorum contractiones, ac triste lethum pro majori vel minori hujus veneni quantitate, producant. Eadem est huic veneno medendi ratio, quæ arsenico aut sublimato corrosivo, intus sumptis convenit.” *Geoff.* i. 302. But it is neither corrosive nor narcotic more than iron; yea less corrosive, though more styptic.

For 1. Copper being dissolvable in some degree, in any of our fluids, we can discover it to be, even in forma metallica, of a nauseous styptic taste, and fætid mineral smell; in both which it much resembles iron, and like it easily communicates them to water. 2. Though the fumes of melting, or rather refining copper, from the other minerals mixed with it, may be noxious; yet I have met with no instance of their bad effects. Coppersmiths, founders, and other workers in it, are as sound and healthy as workers in iron.

“Quod cuprum attinet, notabile est monetarios, qui ex argenti & cupri mixtura faciunt monetam levem, & minus mobilem contrahere sibi in manibus cæruleas multas maculas, quod non contigit, si purum argentum tractant.” *F. Hoffman. Metal. Morb.* p. 38.—I have never seen any of these, but since this is all he says of it, it is probably of little consequence; and the rather since we read of persons finding benefit by working in copper-mines as well as by copper-medicines.

“In multis affectibus, æs tanquam præsentissimum remedium adhiberi potest: hocque in medicina utilissimum est, inde colligimus, quoniam ære vulnerati, citius quam ferro faucii curantur, & quamvis aquæ thermales, ærugine infectæ vomitum promovent, nihilominus ori, glandulis, uvæ, & oculis non mediocri sunt adjumento. Hinc *Dioscorides* ad ocularia medicamenta vasa ænea adhibet. Quocirca jure optimo *Macrobius* scripsit operarios, in fodinis æris versantes, oculorum valetudine semper pollere, & alios oculis laborantes ad æraria accedentes, pristinam sanitatem, adipisci.—Æruginis vires a *Jodocio* celebrantur his versibus.

“Adstringit, tenuat, lachrymas ciet, ulcera sanat,

“Expurgat callos duritiemque loci;

“Exsiccat fordes auris, sed naribus intus

“Quando supercrescit inde premenda caro.” *Bib. Pb.* i. p. 17.

3. It stops bleeding, dries, cicatrises; not as an escharotic properly, but by its stypticity contracting the fibres and vessels, whereby it expels the more watery, and thickens or coagulates the remaining parts of the juices.—Will the vitriolum cupri corrode linen as the vitr. ferri does? A solution of vitriol. virid. soon corrodes leather; but a solution of vitriol. cærul. had no such effect,



fect, though infused in it many weeks, nay months. — 4. Vitrioli martis coagulates the blood, as much as vitriol. veneris. — 5. Copper cannot be called a poison, though taken in a metallic state. I swallowed a Will. and Mary *bodlè*, when but about eight years old; it did not occasion the smallest uneasiness, or sickness, though it passed not through me till after two days. A quack some years since gave several ounces of the filings of a brass candlestick, &c. in honey to a gentleman for a disease in his stomach, which it accidentally cured without any bad effects. And I knew a child devoured a lump of verdegrise, of more than 3ß weight, who is alive still, though it is more than eleven years ago: she soon vomited it up again. For, 6. Copper dissolved, according to the dose, may either prove a sudden and brisk emetic or a powerful corroborating astringent, and thus also deobstruent.

“Æris solutio in aceto stillatitio, colata, igne modico inspissata, evadit  
 “smaragdi instar viridis, minima parte guttulæ uno momento emetica, fæto-  
 “ris ingrati, nauseosi. — Æruginis solutio in aceto si distillat ad residuum  
 “quartæ, dat liquorem fortem æris. — Mirificæ virtutis emeticæ & purgantis.”  
*Boerb. Chem. ii. Procef. 188.* — “Solutionis cupri in aceto gut. i. in syrupo quo-  
 “dam hausta aut vitrioli inde parati gr. ß. est vomitorium præsentissimum,  
 “simul ac assumptum est, citissime movens; adeoque venenis e ventriculo  
 “expellendis, presens & efficacissimum remedium. Vermes etiam omnes  
 “necat.” *Boerb. Chem. M. S. p. 267.* — “Liquor hic (*i. e.* solutio æris in sale  
 “ammoniaco cum aqua) exhibet fumosum illud antiepilepticum puerorum.  
 “Guttæ pauculæ in hydromelite datæ jejunis, levi motu, alvi subductione,  
 “nausea inducta, mire mutant pigros, tenellos stomachos, hos excitant,  
 “aquas, pituitas, educunt, vermes occidunt. His effectis quædam cacochy-  
 “miæ & epilepsiæ species sanantur.” *Boerb. Chem. ii. p. 476. Procef. 189.*  
 “Solutio æris in aq. forti, emetica est minima dosi; omnia insecta necans.”  
*Vide Procef. 190.* — “Solutio æris in sp. salis ammoniaci, si potatur mane, je-  
 “juno, ex hydromelle a gut. iij. quotidie duplicando dosin, ad quartam vicem  
 “usque xxiv. bibendo, superambulando leniter, & tunc dosin hanc gut. xxiv.  
 “continuando, per aliquot dies, dat aperiens, attenuans, calefaciens, diureti-  
 “cum, fortissimum, promptissimum. Hujus ope solius sanavi hydropicum,  
 “asciticum, consummatum, exitato urinæ effluvio, ut quasi de siphunculo  
 “aperto, profluerit lotium, & integumenta abdominis exinaniti complicari  
 “possent. Qui vir dein bono, instaurante, sicco victu perfecte convalescens,  
 “diu sospes supervixit. Idem in aliis tentantem — successus destituit. —  
 “Eadem vero tinctura, in acida, aquosa, debili, frigida mucosa, pituitosa,  
 “quavis ægritudine efficaciz laudem meretur.” *Ibid. ii. p. 478. Procef. 192.*

I was, when about eighteen, persuaded by a lady doctress to take vitrioli cærulei ʒß dissolved in a glass of water, for a vomit; with which, as she said, she had done much good to many. A large dose indeed! But as I don't remember to have stood in need of it, and being difficultly moved, I vomited but little, and was rather the worse than better for it. Its taste continued with me several days. Hence it is no poison more than iron; and cannot cause intestinorum exulcerationes, but would rather cure them. *Dioscorides* says that the squamma stomomatis has the same virtues with the squamma æris, but adds “ad alvum attamen purgandam ineffecacior.” lib. 5. c. 90. p. 356. And really ærata and ferrata, seem to differ in nothing so much, as

in the degree of the nauseous stimulus; if iron be not more corrosive. If any of the virtues of iron depend upon its specific gravity, copper in this exceeds it, only iron dissolves faster in the primæ viæ, and is more absorbent than copper. The compleat solution of copper in aq. fort. and sp. nitri is blue; as is also the solution or tincture of verdigrise in distilled vinegar. *Lem. Chym.* p. 162, 163.

## LECTURE XXI.

## SECT. III.

## ON COPPER.

**T**HE dose of copper in filings need not be determined. The preparations are ærugo, vitriolum and ens veneris: tutia and pompholyx are called, though improperly, recrementa æris.

The ancients used more preparations of copper than the moderns; as (α) Flores æris; (β) Squamma æris; (γ) Æs ustum; (δ) Diphryges: about which I shall not take up your time (you may consult *Fallopins de fessil.* c. 12. 17. p. 305—315. *Dale*, p. 36. and the authors there cited) but confine myself to such as are now in use. Which are,

1. *Ærugo, æs viride, & viride æris, offic.* Verdigrise is copper corroded by the vapour of prepared marc of grapes, of a bluish green colour, and nauseous styptic brassy taste. It comes from *France*.

“ They stratify plates of copper with the marc of grapes, and after some time maceration scrape off the rust, and make it up into cakes.” *Lemery. Diction.* 10. *Chym.* 164. “ *Ærugo sive viride æris. R Laminas cupri q. v. s. s. s. cum vinaceis stent donec ærugine efflorescant, quam absterge & serva.*” *Cod. Med.* p. 267. *edit.* 1748. A very short and apparently easy process. But I am afraid you would never succeed, had you no other directions in making it. It is certain that copper can be corroded nay dissolved by vinegar, or its fumes, much the same way as lead is; and so give a real ærugo or flos æris. “ *Sed non viridegriseum, quod tantum Monspelii fit, arte & conditione, prorsus singulari, ex ære & vapore vini rubri digesti cum uvis, unde vinum pressu separatum. Hinc menstruum hoc postremum vix aciculi dum sed oleosum pingue, unctuosum.*” *Boerb. Chem.* ii. 475. For a considerable part of it cannot be dissolved by distilled vinegar; there remaining about a fourth part of it, which *Lemery* calls *une matiere terrestre*, *Chym.* 163. It takes no less than forty days to prepare the marc of the grapes, or fit it for this purpose, keep the plates of copper in it s. s. s. and finish the process. See *Mr. Geoffroy* i. 303. who takes his account of it, *Ex Artibus Philosophicis Regiæ Societatis Monspelienfis*. What more could be expected from this vinaceorum præparatio, than perfecting of a fermentatio acetosa? Is the terrestrial feculency added to increase the weight? “ It is not true that verdigrise can be made of vinegar. The best wine is not too good, and they employ commonly the Languedoc wines. The greatest part of that drug, consumed in

Vol. I. S France,



" France, or even in foreign countries, comes from Montpellier and thereabouts." *Sav. Diēt.* ii. p. 1915.

" Invenit et Achilles discipulus Chironis, qua vulneribus mederetur, quæ ob id Achilleos vocatur. Hac sanasse Telephium dicitur. Alii primum æruginem invenisse utilissimum emplastris, ideoque pingitur ex cuspidè decutiens eam gladio in vulnus Teleph. Alii utroque usum medicamento volunt." *Plin.* l. 25. c. 5. p. 632. Telephus, king of Mysia, and son of Hercules by Auge, for denying passage to the Grecians in their voyage against Troy, was wounded by Achilles, and cured again by the rust of the spear which had given him his wound.

It is styptic and emetic; now used only to clean and dry ulcers, repress fungous excrescences, for sore eyes, &c. and is the basis ung. Egyptiaci, bals. viridis; and an ingredient in the emplastrum epispasticum compositum,—with what intention I know not.

" Aerugines omnes adstringunt, extenuant, excalefaciunt; oculorem cicatrices emendant, lachrymas cient, nomas sistunt, vulnera ab inflammatione tumentur, ulcera ex oleo ceraque ad cicatricem producunt; callosa et sordida ulcera purgant cum melle cocta; ammoniaco excepta, et collyrii modo in fistulas adacta earum callos absument." *Dioscorid.* lib. 5. c. 92. p. 358.

From verdigrise, dissolved in distilled vinegar and crystallized, is got, by distillation, the strongest vegetable acid that can any way be obtained. *Vid. Lem. Chym.* p. 164. *B. Chem.* 2. proc. 53. Which is *Zwelfer's* famous menstruum, and which, he says, is tanquam acetum esurinum & liquor alkahest; and commends in epilepsy, apoplexia, &c. See his *Appendix ad Animadv. in Ph. Aug.* p. 43. & *Refutationes Tachenianæ*, c. 29. p. 180. for a genteel dispute.—Hence, however, we see, that copper may be dissolved by an acid without destroying its acidity; in which it differs from all absorbents, as well as other metals. [b]

2. *Vitriolum veneris* is copper dissolved by an acid, as sp. vitrioli or sulphuris, evaporated and crystallized into a blue metallic salt. As it can be dissolved by

[b] As copper is found to be a very efficacious and even a safe remedy, when properly employed, it is much desired that a preparation be found, which may operate on our nervous system as a sedative medicine, without exciting vomiting or such violent effects as all the combinations of it with acids generally do.

It is well known, that when metallic substances are united with acids, they acquire great acrimony, and are frequently unmanageable in their operation; this is more especially the case with copper; and therefore, to avoid this inconveniency, a preparation is now in use, which consists of a vitriolic ammoniac united to it; more mild and gentle in its operation, and by the use of which violent epileptic and hysterical disorders, arising from an increased irritability of the system, have been happily removed, after antispasmodics and the usual tonics have failed.

Its preparation is as follows:

Take a saturated solution of blue vitriol in

water, to which add some spirit of sal. ammoniac, till the copper is precipitated; then add more and more till the precipitate is redissolved: the solution now consists of copper united to a vitriolic ammoniac. The whole is obtained in a crystallized state by the addition of spirit of wine to the solution.

It is commonly proper to begin with half a grain of this *cuprum ammoniacum*, and gradually to increase the dose. It generally makes the patient sick at stomach; but seldom vomits, unless the dose be pushed too far. Its use is less safe in cases of obstructed menses; and it frequently occasions costiveness. The nausea produced by it is sometimes intollerable; but its efficacy in some measure depends on it. I have known obstinate intermittent fevers, which have eluded the operation of the bark, yield to this medicine; and its operation seems to depend on its lessening the vitiated irritability of our system.

any

any acid, so may it be reduced to a kind of salt, or vitriol, with them: but it cannot be crystallized, when dissolved, either in the nitrous or marine acid; such solutions, when evaporated to dryness, attracting strongly the humidity of the air. Vid. *Macquer Chym.* th. p. 81. They are not in use here, except the native blue vitriol, or what is so called, of which afterwards.

3. *Ens veneris offic.* is sal ammoniac. impregnated with the metallic part of the blue vitriol, or the flores veneris. For it is blue vitriol calcined, washed, dried, and sublimed with sal ammoniac. *aa* p. æ. “*Ens veneris.* R Vitrioli cærulei optime reverberati et loti part. i. Salis ammoniaci, p. 11. Sublima s. a. “cum tribus cohobiis.” *Pb. Lond. ed.* 1721. p. 148.—Vid. *Lem. Chym.* p. 462. *Geoffroy* i. 305. All order blue vitriol. *Cod. M.* 230, 231.

But it has been the practice, both at London and here, for some time, to use the colcothar; and thus flores martis, not veneris, were improperly called ens veneris; which the new *Lond. Phar.* now countenances, calling the preparation *flores martiales*: yea, the committee are at pains to prove, that Mr. Boyle, who prefers the Hungarian to all other vitriols, and ascribes its effects to copper (vid. *Usefulness of Experimental Ph.* 2. § 1. *Essay* 5. c. 6.) must have meant a green vitriol, or never have prepared the medicine. See *Pembert. Narr.* p. 64, 66. and compare with it *Pb. Reformata.* p. 77. or *Lewis Ph.* p. 291. N. B. Ferri et cupri *aa* solutio vitriolum dant cæruleum, v. vitriolum. In my opinion the controversy is of little consequence; the preparation being much the same, whether blue or green vitriol be taken, if the name be changed. Vid. *Boer. Chem.* ii. p. 502.

I dissolved our common ens veneris in water, and when it had stood ten days, filtered it, and from ens veneris, gr. xxxij. got of a sort of rubrica, or red powder, gr. iij. The liquor had a strongly vitriolic taste, and evaporated in the common air, yielded salis ammoniaci martialis gr. aliquot.

It is astringent, deobstruent, diaphoretic and stimulating, and so of use in diseases from laxity and weakness of the vasa and viscera. It is commended in worms, rickets, vapours, old gleans, &c. and may be given to gr. x. or xij. *ni nauseam moveat.*

“Anodynum est et pacificum. Usus est eximii in rachitide, et vermibus infantium necandis. Proficuum in pleuritide ac uteri suffocatione. Obstructiones aperit, &c. Dosis gr. iv. ad xij.” *Bat. Ph.* 67. “Dosis a gr. i. to vj.” *Geoffroy* i. 305. “A gr. vj. to xxj.” *Lemer. Chym.* 462. Who says they are highly esteemed for the epilepsy, scurvy, scrophulæ, malignant fevers. “It is a wonderful good medicine, not only in all intentions where chalybeats are prescribed, but also in hysterical affections, and all nervous disorders. It is much in extemporaneous prescriptions, from gr. vj. to xxj. and suits best the form of a bolus. It makes pills swell and crumble, except such as are made of gums.” *Quincy Ph.* 241. Vid. *New Dispensatory*, p. 322.

*Pompholyx, nihil album offic.* Dale 37. *Agricol. Fossil.* l. 9. is a white, light, friable foot, without taste or smell, found in furnaces wherein lapis calaminaris is calcined, yellow brass made, or frequently melted. For it is the *zinci flores albi.*

The l. calaminaris, by sublimation, gives (α) flores cærulescentes; (β) Gri-feos; and (γ) at last albos, or the pompholyx, which is the whiter the longer



the sublimation is continued; and if unconfined, they cover all the furnace above the fire. If zink (which is a demi-metal, semi-malleable, of a bluish white colour, brought from the East-Indies and Germany) be managed the same way, it may almost all be turned into the same kind of flowers. Vid. in *Cramer*. i. 7. and p. 236. how it is prepared, or got from several metals and minerals. But since flores, apparently the same, rise from antimony, bismuth, &c. and since other substances may be mixed with it, it is not easy to say, that all that is sold for pompholyx comes from zincum.

*Cramer* says also, that from 60 centen. mineræ, scarcely lbij, iv, or at most vj. zinci can be obtained. i. 38. "In officinis pompholyx et nihilum venalia præstant, sed raro genuina, quia enim parcius colliguntur, plurimis modis adulterantur." *Id.* ii. a. p. 237. ad 245. Such as would have it genuine, he advises to prepare it themselves. "The best comes from Holland." *Sav. Diæ.* ii. 1169.

Pompholyx, if genuine, perhaps would be emetic internally, perhaps useless, like some flores antimonii, according to the degree of their calcination. But it is used only externally, for excoriations, ulcers, sore or watery eyes; yea, it is commended for cancers, as a cooling, drying, repellent.—All this is from the ancients. I doubt of its virtues. Our ung. diapompholygos has a better claim to them externally than the simple, which it might well want without being the worse for it.

"Vis pompholygis astringere, refrigerare, explere, purgare, spiracula cutis obducere et quadantenus exsiccare." *Dioscorides* (who says no more of its virtues) lib. 5. c. 85. "Pompholyx est medicamentum prope omnium quæ citra morsum desiccant si elota fuerit, præstantissimum: quàmobrem ad ulcera cancrofa idonea est, et ad alia omnia maligna. Itaque inditur collyriis, quæ ad oculorum imponuntur fluxiones, quæ bullas sive pustulas in iis natas, aut ulcera curant (*Schrod.* p. 464. transcribes this) præterea ad pudentorum ac sedis ulcera optimum est medicamen, nimirum sine morfu ut dixi desiccans." *Galen. Simp.* 9. p. 70. H. "N. Legitima raro in officinis extat; ejus loco cadmia uti solent." *Schrod.* l. c.

Mr. *Geoffroy*, i. 212. only paraphrases *Schroder*, but enlarges more on the flores zinci: "Zinci flores albi, says he, sudoriferi sunt et nonnunquam per superiora et inferiora purgant a gr. iv. to xii. Extus vero adhibiti a pompholigo offic. re ipso non differunt. potentur siccant, &c." i. p. 244. But since we are uncertain what pompholyx we get, whether it has arsenic in it or bismuth; whether an useless caput mortuum, or astringent, or narcotic; might we not well want it, or substitute in its place tutia?

*Tutia, tulbia, cadmeia, cadmia factitia, cadmia fornacum offic.* *Cadmia fornacum Agric. fossil. Worm. Mus.* 134. C. botritis, *Aldrov. Mus. Metal.* 16. *Tutia officinarum. Dale,* 37. *Cadmia recentiorum. Tutia vulgaris offic. Geoff.* i. 209. *Tutty* is a pretty solid, crusty substance, resembling pieces of bark; rough, granulated, and grey on its outside; smooth and somewhat yellowish within, or on the concave surface; without taste or smell; formed probably of the vapour which arises from metals or minerals which contain zink, when in fusion or calcining in the fire. For

Although I have not met with any satisfying account of the place where, or manner how tutia is prepared, yet since by it, as well as by calamine and zincum,

zincum, copper can be changed into yellow brass, without losing its ductility, and with increase of weight, it is more than probable, that it is a sublimation from mineræ containing zink, as well as pompholyx is; with this difference, that the zink is not entirely destroyed in it, and reducible, as it is in pompholyx; which, on that account, cannot give the gold colour to copper as tutia can. Vid. *Cramer*, ii. 249. "Zincum in mineris aliisque latens, suam præsentiam floribus quos de se demittit si igne validiore torquetur, nec non tinctura aurea cirina quam cupro conciliat, manifestat: ambo enim istæ hæc effecta, a nullo alio cognito corpore, quantum experimentis traditis constat, unquam producta fuere. Hinc ex hisce æque firmiter licet ad zinci præsentiam concludere, quam ex magnetis actione ferrum alicubi præsens dignoscitur." *Cramer*, ii. p. 243.

Although zink cannot be separated from calamine or any mineral by fusion, yet the learned Dr. *Hul*, *M. M.* p. 87. says, "Absolute zink may be procured by fusion from tutty in considerable quantity, more or less, according to its purity. I have met, says he, with many pieces, from which I have been able to reduce between 3ij. and iv. of pure zink from the ounce." *Credat Judeus*.

According to *Garcias*, the tutia Alexandrina is made in Persia of the ashes of a tree called Goan; and with him *Clusius* agrees. Vid. *Clus. Exot.* 165. "Fallitur vehementer hic, noster *Garcias ab Orta*, sed constat hoc se auditu percepisse, itaque deceptus fallit alios. Nam sit ex terra quadam argillæ instar glutinosa, quam colligentes Indi, ollis in eam rem ex argilla confectis indunt, ac aquam addentes eam curiose baculis circumagitant, dein fornacibus in hunc usum effectis imponunt, ac per ignem exsiccata omni aqua, dein terra hac calcinata, lateribus prædictarum ollarum, demptis sordibus quæ in fundo hærent, tutyam lateribus affixam abrasunt, quam arcis inclusam venalem ferunt per totam Indiam; ejus enim usus est in depilatoriis apud hæc gentes, præsertim fæminis, dum se in balneis vel fluviiis lavant." *Jac. Bontii* Not. in *Garciam*, p. 4. who is also mistaken. Tutia not being a depilatorium, yet *D. M. M. Index*, assents to this. *Pomet*, *Lemery*, *Savary*, say it is found attached to earthen rolls, "Ad ferreas hastas" *Geoff.* placed above the furnaces of founders in bronze, to receive the vapours. "Alii quibus et nos consentimus, corpus quoddam ex fuligine æris, dum in fornace conficitur, concretum esse volunt, adhærens ferreis hastis." *Dale*, p. 37.

As to the place from whence it is chiefly had, most authors are silent. "It was formerly brought from Alexandria; but what we use in France, comes from Germany and some other places, where they work a la bronze." *Lemer. Diæt.* p. 560. "Tuthie, by an arret, in 1685, is taxed as a commodity coming from the Levant." *Sav. Diæt.* ii. 1871. and in vol. iii. p. 604. it is said to be brought to Marseilles from Holland, Smyrna, and Aleppo.

"Omnes species cadmiæ græcorum nunc in officinis ignotæ sunt; nec Arabes eas norunt.—Cadmia recentiorum, tuthia efficitur. Non cupri, sed aurichalci recrementum est, seu potius est recrementum lapidis calaminaris cum cupro fusi; cum veterum cadmia ex solo cupro oriebatur," says *Geoff.* i. 209. and that after he had employed three or four pages on the cadmia veterum, how profitably I shall not enquire. You may read, if you please,

*Fallop.*



*Fallop. de fossil. c. 12. De Cadmia*; p. 305 to 309. However, at present, by *cadmia nativa* is commonly understood *cobaltum*; especially if *metallica* be added: by *cadmia metalli* *expers*, *lap. calaminaris*; and by *cadmia, c. fornacum* or *c. factitia*, our *tutia*, *tuthia*, or *thutia*, as *Fallop* writes it.—That *tutia* or *tuthia* is the Arabian name of *pompholyx*, they calling our *tutia*, *climia* or *chlimia*, is observed by some. *Vid. Clus. Exot. 246. Schroder, p. 461.*

*Tutia* is said to be a violent and dangerous emetic: but it is used only outwardly like the *pompholyx*, with which it agrees, if prepared by a triple ignition; but if only finely levigated, it must be more efficacious, as repelling, drying, cicatrising, for excoriations, sore eyes, ulcers, and the like, if *zink* have any virtues. For

“*Tutia ter candefacta, toties extinguitur in aqua fontana (Rosar. ed. 1735)*  
“*deinde trita in pulverem et super marmor levigata, repetita aquæ affusione*  
“*in pulverem tenuissimum, ut bolus armena, redigatur.*” *Pb. Edin. 1744.*  
It cannot be too well levigated; but the triple ignition probably destroys the *zink*, fixes it, or reduces it to the same condition with the *flores albi irreducibiles*, or *pompholyx*. Would it thus turn copper into yellow brass? *Ignoro.* But the *Pb. Lond. Nov.* only reduces it to an impalpable powder, by levigation with water, without candefaction, and so none of its virtues are lost. The repeated ignition seems to be designed to drive away the arsenic in it.

“*Est arsenicalis profapiæ; prunis injecta fumat et sulphur redolet. Mures*  
“*eam non attingunt. Atroces vomitus movet.*” *Albin. M. M. M. S.* But how does it appear that there is arsenic in it? If there is, why is it used? Is it not more a-kin to *bismuth*? “*Odoris et saporis est expers, valet ad inter-*  
“*triginem hæmorrhoides cæcas, et convenit cum pompholyge.*” *Nucl. Belg. 299.*

“*Tutia inter ophthalmia remedia præstantiora re-ensetur; abstergit enim*  
“*et exsiccat sine morfu. Unde in ulceribus corneæ adnatæ et palpebrarum*  
“*feliciter præscribitur, in oculorum pruritu, in ophthalmiis inveteratis, et ad*  
“*lachrimantes vel fistulosos oculos sistendos. Raro adhibetur nisi præparata*  
“*igniando et extinguendo ter quaterve in aqua rosarum, levigandoque supra*  
“*marmor, S. A.*” *Geoff. i. 210.*

We have an ung. *tutiæ*, which is used also in the ung. *ophthalmicum*. *Tutia* and sweet butter, which is Mr. *Geoffroy's* ointment, I think as good as either, and no worse than the famous *arcanum*, *Pb. Lond. novæ. R Tutia* *preparat. Ibj. huic admisce axungia viperinæ curatæ q. s. ad unguenti mol-* *lioris crassitudinem.* Though I admire none of them, nor any greasy application whatever in diseases of the eyes; yet certainly they do good sometimes: which however is perhaps more owing to the irritation of the hard powder than the virtues of *tuthia* or the greasy excipients. In confirmation of a very just observation, viz. that a disease in one part may require a very different remedy from the same disease in another, *Galen* instances in an inflammation: Oil e. g. says he, which mitigates (*adulcit*) phlegmons in the arms or legs, augments inflammations of the eyes. *Vid. Le Clerc, Hist. 700.*

## L E C T U R E XXII.

## F E R R U M.

## S E C T. I.

**F**ERRUM, mars, acies, chalybs, *offic.* Ferrum. *Worm. Mus.* 122. *Aldrov. M. Metal.* 129. *Dale*, 34. F. vulgare, *Geoff.* i. 286. Iron. This is the hardest and most elastic of the metals, of a shining white, but somewhat livid colour; of a styptic nauseous taste, and vitriolic smell.

1. It is to water in specific gravity as 7852 to 1000, or loses more than  $\frac{1}{4}$  of its weight in that fluid; and is to gold almost as 3 to 7.—2. Though it contains more of a combustible sulphur than any of the former metals, yet it requires a greater degree of heat to melt it, being long red hot before it flows, smoking, sparkling, and continually losing in weight.

“Valde fixum est in igne: requirit summum ignis gradum ad sui fusionem; tumque de substantia sua quam plurimum amittit, scintillat, in vitrum fusco-cærulescens et in fumos sulphureos resolvitur.” *Cramer*, i. 5.—3. However hot, even in fusion, it easily bears cold water, which only hardens it.—4. It is the hardest of all metals; yet ductile into slender wire, and malleable, unless it is not fully refined, or is hardened by art.—5. It easily dissolves in, or is corroded by, every salt and acid; and as easily parts with them and turns red, being difficultly preserved from rusting.

“Ab acidis quibuscunque dissolvitur, intactum vero relinquitur a salibus alkalinis.” Iron is dissolvable even in fixed alkalines. *Vid. Macquer Chym.* “Aqua immersum, non nisi post longum temporis spatium eroditur; sed intra paucum tempus si alternatim humectetur et exsiccetur. A rubigine servatur pinguis (chiefly if animal) illitum.” *Geoff.* i. 288.—6. Lead as well as antimony calcines it.—And, 7. Iron, and iron only, is attracted by the loadstone. *Vid. B. Chem.* i. 39.

“Equales portiones scobis ferreæ ac nitri in crucibulum candens conjectæ, mox quidem ebulliunt et fumum copiosum et fætidum emittunt, tandem deflagrant cum fulguratione. Scobs ferrea in spiritum salis vel vitrioli injecta, vehementem excitat effervescentiam, cum copioso fumo prorsus sulphureo, cui si candela accensa admoveatur, statim flammam concipit, sæpe cum fragore et vasorum disruptione.” *Vid. Geoff.* i. 289. Where are the phenomena of iron exposed to the focus of a burning glass. On the whole, he concludes, “Ferrum bituminosæ substantiæ portionem non mediocrem continere, quæ cum sale vitriolico consociata, tantâ terræ metallicæ vitrescibilis copiâ implicatur et irretitur, ut non nisi difficillime cum nitro deflagrationem et fulgurationem suscipiat.” See *Hill, M. M.* p. 6. who steals a great deal from him, without naming him, and adds, “Iron, on being heated red hot, increases in bulk and in weight, but it returns to its former gravity and dimensions when cold.”



Iron [a] is found almost every where; in earths, in stones, in almost every minera; even in the ashes of vegetables (*Mem. A. R.* 1706.) in coral (*Ib.* 1711.) and even in animal substances found (vid. *Comment. Lips.* vol. iv. p. 469.) as well as morbid (vid. *Lyster*, &c.); at least such substances are found in them when calcined s. a. as the loadstone attracts. But that native malleable iron is found any where is not probable, there being every where an acid to corrode and destroy its metallic state.

“Ferrum nativum purum, si in regno minerale datur, certe tamen rarissimum est. Habentur equidem pro tali lapilli octoedri, tum cubi etiam solitarii, aut varie concreti . . . coloris flavi, rubiginosi, bruni fusci ferro quidem ditissimi: sed sub malleo tamen nec ferri vulgaris ductilitatem, neque et chalybis duritiem exhibent. Hinc mineræ potius quam ferrum nativum.” *Cramer*, i. 198.

The richest iron ore is very hard and heavy; of a reddish and somewhat bluish colour when broken; and will yield of the best iron from 60 to 80 lb. per cent. Some ores are yellow, others white and sub-pellucid, spathi instar, containing ferri optimi 30 lb. per cent. The yellow sulphureous pyrites being also iron ores. These *Cramer* calls the more fluxile mineræ; the hæmatites, magnesia, ochra, rubrica, mineralia vitriolica, &c. being more refractory; to which may be added the magnes. Vid. *Cramer*, i. 198—208. where, among many curious things, you are taught how by the loadstone to discover how much iron is in any ore. For notwithstanding the magnet attracts iron, though adulterated with any other metal, or demi-metal, arsenic not excepted, save only antimony; yet there are few, if any ores of iron, that it draws antiquam ustulatæ fuerint, as he there directs: even the rust of iron, iron calcined in the fire, or corroded by acids, without such ustulations, are not moved by it. And after enquiring into the reason of this, and giving some experiments, concludes, “Unde patet per oleosum inflammabile, ex non ferro, nasci ferrum.”

“Ex luto beneficio olei lini ferrum se confecisse testatur *Becherus*, in *Sup. Phys.* “*subter*: ut inibi ferrum revera generatum fuisse sibi persuadeat. Verum durum hoc est credere; ferrum ex luto separatum fuisse, non autem productum de novo, facile crediderim. Notum enim est lutum sive argillam sæpe ejusmodi mineris martialibus non esse destitutum. Unde et *Gilbertus*, l. i. c. 8. *de magnete*, nullam esse terram testatur, quæ martiali non sit impregnata substantia.” *Hoffman in Schrod. Magnet.* p. 243. [b]

How

[a] Iron may be obtained from the vegetable, animal, or fossil kingdoms.

The ashes of most plants contain it in considerable quantity, so as to be attracted by the loadstone.

*Lisser* has observed, that in the human calculus there are many particles, which are attracted by the loadstone: and from repeated experiment it is proved to exist in the blood of animals, in which it is rendered obvious to our senses by calcination.

It is in larger quantity in the blood of warm than of cold animals; and is found in the greatest proportion in the human blood. According

to *Menghinus*, two ounces of human blood yields one scruple of the calx of iron; so that the proportion of iron is near as 1 to 120.

[b] Iron is found in the earth.

A. In the form of calx.

1. Pure.

1. Loose and friable. *Minera ferri californis pura friabilis*,

2. Powdery. *Ochra ferri*.

3. Concreted bog ore.

a. In the form of round porous balls.

b. More solid balls.

c. In cakes.

d. In

How iron is separated from the ore, rendered malleable, perfected into steel, &c. is related by *Cramer* ii. p. 192—210; where are many things both curious and useful. As that iron is seldom on the first fusion ductile, sulphur and arsenic still remaining in it, as well as a terra non metallica: that these are separated by refusion with proper fluxes, which must be repeated: that the hammer is of great use here, as also ignition and slow-cooling: that iron is turned into steel either by cementation, or fusion, &c.

“ There are several sorts of iron-mine, some hard, some gentle, some rich, some coarser. The iron-masters always mix different sorts of mine together, otherwise they will not melt to advantage. When the mine is brought in, they take small coal, and lay a row of it, and upon it a row of mine, and so alternately f. f. and setting the coals on fire, therewith burn the mine :

- d. In small grains.
- e. In lumps of an indeterminate figure.
- b. Indurated. *Minera ferri calciformis pura indurata*, Blood-stone. *Hæmatites*
  - 1. Of an iron colour. *Hæmatites cærulefcens*.
  - a. Solid, and of a dim appearance when broken.
  - b. Cubical, and of a shining appearance when broken.
  - c. Fibrous.
  - d. Scaly.
    - 1. Black.
    - 2. Bluish grey.
- c. Crystallized.
  - 1. In octoedrical crystals.
  - 2. In polyedrical crystals.
  - 3. In a cellular form.
- 2. Blackish brown blood-stone. *Hæmatites nigrescens*.
  - a. Solid, with a glassy texture.
  - b. Radiated.
  - c. Crystallized.
    - 1. In form of cones from Siberia.
    - 2. In form of concentrating balls with a faceted surface.
- 3. Red blood-stone. *Hæmatites ruber*.
  - a. Solid and dim in its texture.
  - b. Scaly.
  - c. Crystallized.
    - 1. In concentrating balls with a flat or faceted surface.
- 4. Yellow blood-stone. *Hæmatites flavus*.
  - a. Solid.
  - b. Fibrous.
- 2. Iron in the form of calx, mixed with heterogeneous substances.
  - a. With a calcareous earth, white iron ore.
  - b. With a siliceous earth, martial jaspire.
  - c. With a garnet earth.
  - d. With an argillaceous earth.
  - e. With a micaceous earth.
  - f. With manganese.
- g. With an alkali and phlogiston. *Calx martialis Phlogista juncta et alcali præcipitata*. Blue martial earth.
- b. With an unknown earth, which hardens in water.
  - 1. Loose or granulated.
  - 2. Indurated. *Cementum induratum*.
- i. With an other unknown earth. *Ferrum calciforme terra quadam incognita intima mixtum*.
  - i. 1. Solid and fine grained.
    - a. Reddish or flesh coloured.
    - b. Yellow.
  - 2. Sparry, and with an unctous surface.
    - a. White.
    - b. Pearl coloured.
- B. Dissolved or mineralized iron:
  - 1. With sulphur alone.
    - a. Perfectly saturated with sulphur. *Mundic*.
    - b. With very little sulphur. Black iron ore.
      - 1. Magnetic iron ore. *Minera ferri attractatoria*. Loadstone.
        - a. Steel grained of a dim texture.
        - b. Fine grained.
        - c. Coarse grained.
        - d. Coarse scaly.
      - 2. Retractory iron ore.
        - a. Giving a black powder when it is rubbed. *Tritura atra*.
          - 1. Steel grained.
          - 2. Fine grained.
          - 3. Coarse grained.
        - b. Giving a red powder. *Tritura rubra*.
          - 1. Steel grained.
          - 2. Fine grained.
      - 3. Of large shining cubes.
      - 4. Coarse scaly.
  - 2. Iron mineralized with arsenic.
  - 3. With sulphurated arsenic, arsenical pyrites.
  - 4. With vitriolic acid, vitriol of iron.
  - 5. With phlogiston, martial coal ore.
  - 6. With other sulphurated and arsenicated metals.



“ then they beat it into small pieces, with an iron sledge, and then put it into the furnace, which is before charged with coals, casting it upon the top of the coals, where it melts and falls into the hearth, in the space of twelve hours, more or less. Then it is run into sows.” Thus *Ray, Collect.* &c.

There are a great variety of irons, some more, some less malleable; some malleable when hot, but not when cold, and e contra. In *Savary's Dict.* ii. p. 25. there are many things relative to iron, the different kinds of it, and how to know its good and bad qualities, &c. which you may consult. I shall only notice that he says there, that there was no iron in America till the Europeans carried it thither: and that no iron mines were yet found there, which last is a mistake.

“ Ferrum, quasi ferum, unde fera ferri corpora. *Lucret.* — Gr. σιδηρος. Chalybs, acies, χαλυψ, στομωμα, ferrum depurgatum.

“ India mittit ebur, molles sua thura Sabæi?  
 “ At Chalybes nudi ferrum; virofaque pontus  
 “ Castorea; Eliadum palmas Epirus equarum?  
 “ Continuo has leges, æternaque fœdera certis  
 “ Imposuit natura locis; quo tempore primum  
 “ Deucalion vacuum lapides jactavit in orbem:  
 “ Unde homines nati, durum genus.

*Virg. Georg.* i. v. 57.

## S E C T. II.

Iron is absorbent or rather antacid, astringent and emetic; and hence an attenuating and corroborating, deobstruent and diaphoretic, of great use in diseases from acid or viscid crudities, laxity or weakness vasorum & viscerum, and obstructions thence arising. It is commended in vapours, spleen, cachexy, jaundice, green-sickness, quartans, worms, rickets, fluxes, hæmorrhages, fluor albus, mensium obstructio ut & profluvium, &c. dissolved. Externally it dries and cicatrises like copper or the native vitriols. *Magni itaque usus est.*

“ Diversis dotatum est viribus adstringendi scilicet & aperiendi. Vis aperi-  
 “ tiva in volatiliore potissimum residet parte ac proinde in sale; vis adstricto-  
 “ ria in fixiore, adeoque in terra latitat. De his qui ulterius erudire cupit,  
 “ adeat problem.” *Horst. Decad* 7. c. 2.

“ Præparationes præcipuæ, 1. Purgatio gradatoria, unde chalybs. 2. Cal-  
 “ cinatio reverbatoria, unde crocus obstructivus; fusoria, unde crocus ape-  
 “ ritivus; cementatoria, unde vitriolum; immersiva, vaporosa, illinitionis.  
 “ 3. Volatilifatio ac distillatio, unde aqua, spiritus, oleum, &c. 4. Extractio,  
 “ unde tincturæ. 5. Sublimatio, unde flores. 6. Salificatio. 7. Liquatio.”

*Schroder.* p. 383—390.

“ Rubigo ferri, seu ferrugo, (ῥος δὲ σιδηρῆ) restringit, fluorem muliebrem  
 “ subdita sistit, potuque conceptionem impedit, (πινομενος τε ἀπολληψιαν ποιεῖ.)  
 “ Illita ex aceto erysipelatis & papularum eruptionibus medetur per quam  
 “ utilis ad digitorum paronychias, pterygia, genarum scabrities, & condylo-  
 “ mata. Gingivas eadem firmat, & podagricis inunctione prodest, & alope-

“cias explet. Vinum, aquave in qua candens ferrum restinctum fuerit, potu  
 “cæliacis, dysentericis, lienosis, cholera laborantibus, & stomacho dissolutis  
 “auxiliatur.” *Dioscorid.* l. 5. c. 93. p. 359. &c. Vide *Plinii* l. 34. c. 15.  
 p. 824. *Galen. Simpl.* p. 71. *A. Paul.* l. 7. p. 640. or instead of all, *N. Mo-*  
*nardi Dialogi de Ferro pars altera*, in *Clusii Exot.* p. 24—32.

1. Iron has a nauseous styptic, mineral or brassy taste, little milder than copper; and when rubbed, heated, corroded, and especially when it is dissolving, emits sulphureous fetid steams, which are sometimes inflammable; for such are the vapours of iron dissolving in ol. vitrioli. *N. B.* Limaturas ferri cum sulphure mixtas & madefactas. *B. Chem.* i. p. 384.

2. This hardest of metals easily and almost intirely dissolves in the stomach, or primæ viæ, especially if acids predominate there, or be taken after it; as appears by the fetid ructus, smelling like some mineral waters, or a foul gun, which it occasions; and its solution in any acid, vegetable or mineral: even water or moist air corrodes it. — “Ferrum in subtilissimam limaturam redac-  
 “tum, per se in corpore nil efficit, & ineptum prorsus ad agendum existit,  
 “nisi acidum in prima culina offendat.” *Cartheuser M. M.* ii. p. 639. *Magno errore.* [c]

3. Dissolved in any acid it destroys the acidity, but renders it strongly styptic, or astringent so as to contract and condense animal substances so forcibly as to prove almost escharotic: which quality it communicates to water by infusion, whether hot or cold.

4. Its solution as well as the sal martis, if strong at least, coagulates the blood and serum. “Sale chalybis sanguine canis arterioso admixto, coagula-  
 “batur sanguis, aliqua tamen ex parte adhuc fluidus.—In venam jugularem  
 “canis injecta est salis chalybis in aquæ ʒij. soluti ʒß. Post palpitationem  
 “cordis & dyspnæam vehementissimam obiit animal. Sectâ venâ iliacâ,  
 “sanguinis non concretus quidem, sed non nihil grumescens. Ita in corde  
 “sanguis coagulum quoddam contraxit, licet quam in cæteris experimentis  
 “(cum sale saturni, acidis, &c.) imbecillius.” *Freind Emmen.* c. 14. Vide *Boerb. Chem. M. S.* p. 219.

5. Taken inwardly it dyes the fæces, and tunica villosa, black; but neither the lacteals nor chyle are tinged by it. Vide *Alb. M. S.* and *Boerb. Chem.* ii. *Proc.* 162. Hence the metallic part seems to be precipitated in the intestines,

[c] Iron, like many other metals, has its medicinal powers much injured by pharmaceutical and chemical operations.

The most safe, elegant and efficacious manner of giving iron as a medicine, is in filings, carefully collected by the loadstone from every matter which might otherwise adhere to them.

The action of iron seems to depend on a change which it undergoes by being dissolved in the stomach, and therefore when previously united to any saline matter its astringency is its only power which remains: in proof of this, its good effects are immediately perceived when the patient has frequent eructations, and more especially if acidity prevails in the stomach. In the dose of five and seven grains in chlorotic

cases attended with fluor albus, I have perceived the most salutary effects.

It is of some importance to reduce these filings to a very fine powder, so as to render them more soluble in our stomachs, and this is done by suspending the finer parts in water, and then pouring them off, and allowing them afterwards to subside. Some have proposed to collect the precipitate produced, by adding an astringent to a solution of green vitriol; but as the iron is here blended with the astringent matter, and not containing so much phlogiston, this method is inferior to the former practice recommended by *Lemery* in the *Memoirs* of the French Academy.



as it is from any chalybeat water by a vegetable astringent. Hence it is absorbent and astringent, &c.

Do any of its virtues depend on its elasticity? No. For dissolved it is not elastic.—Or on its sulphur? The subtile sulphur that flies off, when it is dissolving, may perhaps have some attenuating and stimulating effects, though probably not in any high degree, seeing it flies off or escapes soon in rusts. Vide *Messis. Lemery* and *Geoffroy* their very different accounts of the operation of iron. *Mem. A. R.* 1713. Does none of the metallic part enter the lacteals? I do not know. Why? Is not iron found by the loadstone in some animal substances, and consequently a terra martialis at least must somehow enter? May not then some of the virtues of iron be owing to its specific gravity? Granting that it is found in some animal substances, after an artificial calcination, it may be doubted if it was in the least of the nature of iron before, or near to it in specific gravity. Yea granting also it was as heavy as iron, unless its thus attenuated parts were of a globular, or of such a solid figure, that their gravity is not counterbalanced, or rendered inactive, by the largeness of their surfaces, I don't see how it can increase the momentum fluidorum, or any of its defects depend on its gravity. Have manna, mel, &c. any of the virtues of iron? Whether is steel or iron preferable for medicinal use? Certainly the most soluble, that is the softest iron, which rusts much sooner than steel, is best. *N. B.* Both chalybs and ferrum are among the simples in the *New Lond. M. M.* Here, obiter, allow me to make some observations on a passage of *Dr. Freind's Hist. of Physic*, viz. vol. i. p. 117, where he says, "In a schirrus of the spleen, *Alexander* speaks much of the virtues of steel. He recommends it in infusion and even in substance. And this as it seems to be the first instance of the practice may serve for a full answer to them, who would pretend that the medicinal virtues of this metal were first found out by chymical methods." *Alexander* indeed orders the squama chalybis, but not chalybs in substance; and that only as astringent: and often he had recommended some vegetables of the same nature, as myrica, asplenon, salix, &c.

"Chalybis squama, *says he*, ex aquæ mistura potu convenit: hæc enim lienem fortiter imminuit, reprimique. Vinum autem & posca in qua candens ferrum extinctum sit, iis qui teneram carnem habent, & febris carent conveniunt, postea vero etiam agrestioribus hominibus." And below the squama chalybis ferrilis is once (with the addition of absynthii comæ & piperis modicum ne stomachum offendat) directed in a potion, and once in a pastillus. "Quo melior invenire nequit; nos enim, *adds he*, frequenti usu probavimus," where it was not  $\frac{1}{10}$  of the composition, of which ʒj. is the dosis: and this is all he speaks there (viz. l. 8. c. 13. p. 272.) and that is not much of steel. The *Doctor* proceeds. "It is certain indeed that there is no mention of it in *Hippocrates*, though he reckons up most of the simple medicines we now have. *Pliny* in relating all the medicinal qualities of steel, mentions but one way of using it inwardly, and that is quenching hot iron in water for a dysentery. *Dioscorides* quenches it in wine too, for the like purpose. The same way of using it we read in *Celsus*, for hindering the spleen from growing too big. *Actius* and *Oribasius* mention steel only as an outward medicine, in the cure of malignant ulcers." But *Hippocrates*, *De Morbis Mulierum* l. 1. (Vide edit. *Foesii* p. 621. lin. 25. and *Linden.* ii. p. 490. §. 101.

§. 101. No. 4.) recommends a fomentum made of old urine in which σιδήρεαι σκωριαι διαπυρα θρυμματα, scorice ferri ignita fragmenta, were extinguished, to be thirty times repeated, ad conceptum juvandum. *Dioscorides* mentions one effect of the rust of iron, inwardly taken; *vide supra*, where, had I authority for it, I would willingly read in place of ἀσυλληψίαν, eis συλληψίαν. Since even *Avicenna* commends wine wherein hot iron is quenched, ad venerem stimulant; and *Monardes* found his pulvis chalybis, ferri, or their scorice promoted conception. “In plurimis mulieribus, *says he*, utilis fuit: nam multæ sunt, quæ eam ob causam in partu compatrem me eligunt. Admirabilis sane in eo negotio est ejus operatio, quia obstructions tollit, menses suppressos ciet, uterum emundat, aptumque ad concipiendum reddit.” *Monard.* l. 1. p. 32. (*Vide infra N. B.*) Dr. *Freind* adds, “So if we look into the writers that succeed these times, we shall find this metal but rarely used; and when it was, either inwardly or outwardly, scarce under any other notion than that of an astringent. Nay *Avicenna* is so afraid of its being pernicious, if used in substance, that he advises the taking of a loadstone after it, to prevent any ill consequence, though his countryman *Rhazes* often recommends this way of using it, and mentions the several forms he gives it in. Since him, I do not know whether any body speaks of it as an inward deobstruent before *Monardes*, who wrote about the same time that anatomy came to be in vogue; which as it gave greater light into the cause of these distempers, so it introduced more effectual ways of removing them.”

*Monardes* after quoting *Rhazes* adds, “*Avicenna* quoque per omnia *Rasiz* sequitur, his tamen additis, aquam in qua ferrum restinctum sit, internas partes & ventriculum, sua qualitate manifesta roborare.—Ferrum quoque ob frigidum, & siccum suum temperamentum, orificii ventriculi corrugationem juvat, qua generatur appetitus: roborat etiam jecur & reliquas interiores partes; naturalem colorem juvat, & villos ea ratione condensat & firmat, ut ad obstructions dissolvendas vires adquirat: eam ob causam lienem absumit, & generativam facultatem fortiores reddit, humiditatem quæ impedit absumendo, & naturalem colorem, ad id valde necessarium adgregando: si vero hoc sua qualitate non præstat, per accidens id agit. Hæc omnia sunt *Avicennæ* in secunda parte primi.” Thus *Monardes* l. c. p. 29. where much more is cited of the virtues of iron from *Avicenna*. It is true *Avicenna* lib. iv. fen. 6. tract. 1. which is *De Venenis* cap. 8. p. 491. *H. de Limatura Ferri* & ejus scoria, says, “Accidit ex illis dolor vehemens in ventre, siccitas in ore—cura est dare in potu lac cum eo quod solvit cum fortitudine, deinde butyrum.—Et quandoque datur in potu potanti ipsum, aliquid de magnete, ut aggregetur illud quod separatum est ad seipsum, deinde consequenter adhibentur solutiva prædicta. Et quandoque datur in potu ex ipso omni die pondus 3j. Deinde dantur ei ad sorbendum jura unctuosæ, lubricativa cum butyro cocto, ut solutio ventris fiat si fuerit descendens; aut evomat ipsum, cum eis, si est adhuc in stomacho.” N. B. *Rhazes* & *Serapio* are referred to in the margin. The same *Avicenna* says also of the magnes, “Datur in potu in vino ei qui bibit limaturam ferri, cum retinetur in ventre ipse, aut bibit scoriam ferri, quæ retinetur; ipse enim magnes attrahit ipsam, & associatur ei apud exitum.” lib. 2. tract. 2. c. 470. p. 146. B. Does the Doctor do *Avicenna* justice? Might he not be as much afraid of the points



points of the filings wounding the stomach, as some of late have been of the prepared antimony? Vide *Pemb. Dispensatory*, p. 146. If the *Doctor* had perused *Monardes*, he would have found that a great many since *Rhazes* and before *Monardes* speak of steel as an inward deobstruent, e. g. *Joan. Platearus* (qui floruit in 1300.) *Math. Sylvaticus* (qui floruit an. 1336.) *Mich. Savonarola* (qui obiit 1431.) *Barth. Angelicus* (qui scripsit ante 1491.) *Math. de Gradibus* (senex qui obiit 1460.) *Christ. de Honestis* (qui floruit circa 1468.) *Vitalis de Turno* (qui floruit 1486.) *Nicolaus Florentinus* (qui vixit ante 1507.) *Gul. de Saliceto* (ante 1500.) &c; and might perhaps have had more reason to say with *Burgus* (qui floruit an. 1260.) “Si quæ dicta sunt memoria repetamus, nullus est in homine morbus, a planta pedis ad summum capitis verticem, in quo ferrum utile non sit.” *Monard. l. c. p. 30.* “And surely, continues the *Doctor*, we can no where have a more convincing argument than in the present case, of what great service and assistance anatomy may be to the practice of physic. For what other reasoning could induce men to use steel in a scirrhus of the spleen or liver, than an ocular demonstration from dissections, that the cause was from an obstruction; from which matter of fact it was easy to infer, that whatever is most forcible in removing the obstruction, would be the properest instrument of the cure. Such is the remedy we just now mentioned, which besides the attenuating power it is furnished with, has still a greater force in this case, from the gravity of its particles, which, being seven times specifically heavier than any vegetable, acts in proportion with a stronger impulse, and by that means is a more powerful deobstruent.” Thus *Dr. Freind, Hist. vol. i. p. 117. to 119.*

For my part I think it plain, that men were induced to use steel in a scirrhus of the spleen, for the same reason that they used other astringents, viz. to diminish its bulk; and its success made them attribute not only to this metal, but also to several of its preparations, an attenuating quality, as distinct from its astringency, to which they have not the smallest claim. The drying and astringent qualities of iron, or chalybeates, are most evident, and were first discovered; and it was very obvious thence to infer, that they might be of use to hinder the spleen from growing too big, without the assistance of anatomy; as it is evident they were used as deobstruents long before that science came to be in vogue.

## LECTURE XXIII.

### On I R O N.

**I**RON in powder, or filings, may be given to ℥j. but gr. x. is commonly enough. The preparations are crocus, flores, vitriolum, mars solubilis, and tincturæ.

There is no danger in exceeding limaturæ gr. x. or ℥j, only if there be acid enough in the stomach quickly to dissolve it, it may cause nausææ; and if there be not, part will go off unaltered.

Clean

Clean and not rusty filings, or powder, and these only, have all the virtues of the metal, for none of its preparations are absorbent. *Monardes* gave pulveris ejus a ʒij. ad ʒjß. it was iron or steel, or its scoria, corroded by vinegar into rust; yet, as he owns, it sometimes for the first two or three days provoked vomiting. Our limat. martis præparata is nothing but powdered rust, not so absorbent as the filings; neither is the chalybs cum sulphure præparatus, *Pb. Lond.* (novæ, as well as veteris) on account of the acidum sulphuris. Is it at all absorbent? Certainly our mars sulphuratus is not: but mars saccharatus is, being the filings only cruusted over with sugar; and hence called steel carvy.

1. *Crocus martis aperiens* is nothing but rust calcined to redness; which may be made either of our mars sulphuratus, or our limatura martis præparata. Vide *Pb. Edin.* The crocus martis aperiens in igne vehementissimo diu reverberatus, becomes what is called crocus martis astringens. Which is most astringent? The least calcined.

2. *Flores martis* are the flowers of sal. ammoniac, charged with some particles of corroded, or dissolved iron; and are in nothing different from the *ens veneris* as commonly prepared, or the flores martialis of the *New London Dispensatory*.

The *Pb. Edin.* takes limaturæ martis and salis ammoniaci āā p. æq.—*Pb. Lond.* colcotharis vitrioli viridis vel limaturæ ferri p. j. sal. ammon. p. ij.—*Lemery* limaturæ ferri ʒxij. salis ammon. ʒviij, which yielded sp. salis ammoniaci flavescens ʒjß. florumque flavorum ʒij. ʒij. of a salt penetrating vitriolic taste; there remaining in the bottom of the crucible a blackish substance ʒxv. ʒvj. so that ʒiv. were evaporated. Of this residuum with sp. vini may be drawn a tinctura martis. “It is sudorific and aperitive, says he, proper for malignant fevers, lethargy, palsy, scurvy, asthma, to purify the blood, and to stop fluxes and vomitings. Dose a gut. iv. ad xx.” *Chym.* p. 201—205.—Vide *Boerb. Chem.* ii. p. 447. Can all the iron be raised?

These flowers seem to be more penetrating, attenuating and diaphoretic, than any of the other preparations of iron, the more volatile part of the metal being so attenuated as to enter perhaps the lacteals. However they are evidently astringent; and are commended in obstructions of the viscera, spleen, vapours, quartans, &c. Vide *Ens veneris*. “Ferrum hic videtur dividi in partem magis volatilem adscendentem, aliamque fixam magis, quæ in fundo manet.—Flores hi habent vires fere easdem, quas in ente veneris dicto *Boyleus* laudaverat. Est enim hoc medicamen mirifice instaurans, calefaciens, aperiens, habetque metallici sulphuris apertum corpus. Quin anodyna quoque in eodem vis sæpe seminarcotica. Ceterum flores siccissimi cum alcohole puro digesti tincturam dabunt, satis largam, auream, metallico-sulphuream. Foex vero residua, alcoholi nupta, similem exhibet.” *Boerb. Chem.* ii. p. 449. “Flores potenter attenuant, incidunt, aperiunt, sudores & urinam promovent, alvum stimulant, & sæpe — si majori dosi exhibeantur, nauseas excitant. Utiliter exhibentur in febribus contumacibus, in asthma, & malo hypochondriaco & aliis morbis chronicis.” *Geoff.* i. 294. Dosis a gr. vi. ad xx. *Lem. & Geoff.* Dosis a ʒß. ad gr. xv. *Macquer. Col. Chym.* 261. —They may be given to gr. x. or xii. A tincture of them is perhaps the best of all the chalybeate tinctures.

3. *Vitriclum,*



3. *Vitriolum*, vel *sal martis*, seu *sal chalybis*, is iron dissolved by the acid of vitriol and crystallized. It differs little from the common green vitriol or copperas, being a strong astringent. Dose ad gr. x. — The prescriptions for this preparation vary, as “R Ol. vitriol  $\mathfrak{z}\text{iv}$ . aquæ  $\mathfrak{z}\text{x}$ . sensim et caute commixta “ affunde limat. martis  $\mathfrak{z}\text{ij}$ . digere,” &c. *Ph. Edin. ed. 1744.* — “R Limat. ferri  $\mathfrak{z}\text{ij}$ . ol. vitrioli æquali capia aquæ calidæ diluti  $\mathfrak{z}\text{iv}$ . M.” &c. *Ph. Edin. ed. 1756.* — “R Olei vitrioli  $\mathfrak{z}\text{vii}$ . limat. ferri  $\mathfrak{z}\text{iv}$ . aquæ  $\mathfrak{lb}\text{ij}$ . M.” &c. *Ph. Lond. n.* — “R Limaturæ ferri  $\mathfrak{z}\text{vii}$ . sp. vitriol  $\mathfrak{lb}\text{j}$ . & aquæ  $\mathfrak{lb}\text{ij}$ .” *Lemery, Chym.* — “R Limaturæ ferr.  $\mathfrak{lb}\mathfrak{ss}$ . aquæ  $\mathfrak{lb}\text{ij}$ . & ol. vitriol.  $\mathfrak{lb}\mathfrak{ss}$ .” *Geoffroy*, who says, “Non solum ad obstructions referendas, sed etiam ad vermes necandos “ commendatur. Dosis a gr. ij. ad 9.”

4. *Mars solubilis*, seu *chalybs tartarizatus*, is iron corroded by the acid of tartar, which at the same time is absorbed by the iron, so as to become a tartarus solubilis martialis. Vid. *Ph. Edin.* It is much commended as deobstruent, for obstructions of the viscera. Dosis a 9j. ad 3ß. Vide *New Dispensatory*, p. 319.

May not the process be shortened by decocting the limatura and cryst. tartari in water to the solution of both, filtering and evaporating to dryness? Mr. *Geoffroy's* tinct. martis aperiens is *Lemery's* tincture of mars with tartar, (Vide *Chym.* p. 196.) made by decocting limaturæ  $\mathfrak{z}\text{xij}$ . and tartari albi  $\mathfrak{lb}\text{ij}$ . “Tar-  
“tarum chalybeatum solubile fit solvendo in supradictæ tincturæ  $\mathfrak{lb}\text{i}$  tartari  
“solubilis  $\mathfrak{z}\text{iv}$ . & solutionem ad siccitatem usque evaporando. Remanet pulvis  
“salinus fuscus. Dosis a gr. x. ad 3j.” *Geoffroy* i. 293.

5. *Tincturæ martis* innumeræ sunt. In our *Pharmacopæia edit. 1722*, there were tinctura martis tartarizata; t. m. Mynsichti, & t. m. acida. In the *edit. 1735*, there were tinct. martis Ludovici (which differed from the former tartarizata, vitriolum martis being taken in place of the limatura, and spirits instead of wine) and t. m. Mynsichti; but t. acida was thrown out. In the *edit. 1744*, there is only one tinctura martis thus, “R Limaturæ ferri sine præpar.  $\mathfrak{z}\text{ij}$ .  
“sp. salis dulcis  $\mathfrak{lb}\text{ij}$ . digere in b. a. calore leni per triduum & filtra.” The tinctura martis acida, *edit. 1722.* is, “R Lim. martis  $\mathfrak{z}\text{j}$ . spirit. salis  $\mathfrak{z}\text{iv}$ .  
“digere per biduum, sæpe agitando phialam; tum evapora ad spissitudinem  
“mellis. Affunde vini albi Gallici  $\mathfrak{lb}\text{j}$ . Digere calore lenissimo, & tincturam  
“filtra per infundibulum vitreum.” If spirit had been taken instead of wine, it would have kept better, and been preferable to the present, and that of the *Lond. Pharm. Nov.* too, which is, “R Limat. ferri  $\mathfrak{lb}\mathfrak{ss}$ . sp. salis  $\mathfrak{lb}\text{ij}$ . sp. vi-  
“nosi rectificati  $\mathfrak{lb}\text{ij}$ . Macera limaturam in sp. salis sine calore, quamdiu spi-  
“ritus ferri radit; postquam fæces subsederunt, liquor evaporetur ad  $\mathfrak{lb}\text{j}$ . &  
“residuo addatur spiritus vinosus.” But there is in this *Pharmac.* also a *tinctura florum martialum*, made è florum martial.  $\mathfrak{z}\text{iv}$ . & sp. vinosi tenuioris  $\mathfrak{lb}\text{j}$ . and after digestion strained off. *Sit instar omnium.*

For *Tinctura antiphthifica*, vide *Saccharum saturni*.

The dose of any of these tinctures may be to gut. xx. or xxx. But regard must be had to their taste.

*N. B.* “Hoc ferro peculiare est, quod suam vehat stypticitatem, vix altera-  
“tam per omne corpus; quod stypticis vegetabilibus non succedit. Horum  
“enim stypticitas in primis viis ita alteratur, ut ea sanguis vix afficitur.  
“Verum mars ventriculi intestinorumque succis solutus in actum erumpit &  
“sanguineo latice permixtus, per totum corporis habitum diffunditur, & vim  
“suam

“ suam astringentem exerit. Observandum est ferri substantiam solam felicius præscribi quam salibus impregnata. Mars enim salibus satius non ita facile a ventriculi succis penetrari, nec dissolvi potest.” *Geoff.* i. 298. I give this as a sample of his reasonings, which needs no answer, being void of all foundation.

## S T A N N U M.

## S E C T. I.

Stannum & Jupiter *offic.* Plumbum candidum, quod & stannum alias vocatur. *Worm. Mus.* 124. Plumbum candidum, alias stannum. *Charl. Fossil.* 48. Stannum. *Aldrovand. Mus. Metal.* 121. *Schroder,* 400. *Dale,* 35. *Geoff.* i. 281. Tin — is, 1. The lightest of all metals, being to water as 7321 to 1000. 2. The least fixed, melting long before ignition, with a degree of heat not much exceeding that of boiling water; and pretty soon, in-part flies off in smoke, and in-part calcines. 3. The softest except lead, not very malleable, elastic or sounding. Yet 4. It yields with difficulty to either lead or antimony in the coppel (when mixed with gold or silver); “ being difficultly vitrifiable, scarcely without addition, and never compleatly; its glass is called enamel, being white and opaque.” Vide *Mag. Ch. Th.* p. 93. “ Ut quam difficile lime inde separari queat, & ne sic quidem absque auxilio veneris.” *Boerb.* 5. Dissolvable in aqua regia only, (and can even precipitate gold dissolved in that menstruum, giving it a fine purple colour, *Ib.* p. 25. and *Ch. Pract.* p. 244;) unless calcined, and then vinegar dissolves it. “ Minimumque solventis requirit.” *Boerb.* And 6. In colour it resembles silver. “ In multis sane proprietatibus argento accedit proprius.” Vide *B. Chem.* i. 40. and *Cramer* i. p. 5.

Tin is the *κασιτερος* Græcorum mentioned by *Homer*, *Il.* λ. v. 25. but generally thought to be the plumb. album, and not the stannum of the *Latins*, at least of *Pliny*, by writers on minerals. But possibly the plumbum album and stannum might be the same thing. “ Plumbi duo genera nigrum atque candidum. Pretiosissimum candidum Græcis appellatum cassiteron.—Certum est in Lusitania gigni.—Invenitur & in aurariis metallis, aqua immissa eluente calculos nigros paulum candore variatos, quibus eadem gravitas quæ auro.” *Plin.* l. 34. c. 16. p. 824. So that his plumbum alb. is our stannum. “ Stannum illitum æneis vasis saporem gratiorem facit, & compescit æruginis virus, mirumque pondus non auget.” *Plin.* l. 34. c. 17. p. 825. Is not this stannum also our tin? So it appears, though each passage is clogged with a vulgar error. However,

Whether tin is any where found pure, or in its metallic form, may be doubted. [a] “ Stannum naturaliter in forma vere metallica extitisse vix

[a] Tin is found in its native and malleable state in many parts of Cornwall. *Phil. Transact.* vol. 56. p. 35.

1. It is found in the form of calx. *Stannum calciforme.*

A. Indurated or vitrified. *Induratum.*

1. Mixed with a little of the calx of arsenic. *Minera stanni citrea arsenicalis.*

VOL. I.

U

a. Solid tin ore without any determinate figure. Tin stone.

b. Crystallised. *Crystallifata.* Tin grains.

1. In larger grains.

2. In smaller grains.

2. Mixed with the calx of iron.

3. Mixed with the manganese.

4. Mineralised with iron. Black lead.

“ certo,



“certo, aut saltem rarissime observatum est. Memorat autem *Matthesius* id  
 “aliquando visum.” *Cramer*. i. p. 217. But in ore both East and West Indies,  
 as well as many countries of Europe afford it. And above all Britain is fa-  
 mous for rich mines of the finest tin, which was wrought in the time of the  
 Romans, and how long before is uncertain. “In Britannia stannum copio-  
 “sum optimum, unde a Bocharto, nomine Britannia, a *Barat Anac Syriaco*  
 “derivata, hoc est ager stanni, dicta putatur.” *Boerb. Chem.* i. p. 41.

“It is supposed that the Jews first endeavoured to dive into these rocks,  
 “(*Cornwall*), for this commodious mineral, though they then wanted the pre-  
 “vailing instruments which latter times do afford. Their pix-axes were of  
 “holly or hulver, of box, hartshorn and such like; which kind of tools,  
 “modern tin men find in old forsaken works, which to this day retain the name  
 “of *Attal farazin*, the Jews cast off works, in their Hebrew speech. The  
 “Romans also in their time took their turn to search for this commodity, as  
 “is supposed by certain of their money, which have been found in some old  
 “works revived.” Thus *Jo. Norden, Description of Cornwall* (*Lond.* 1728.  
 in 4to) p. 11. According to *Dr. Woodward*, no country furnishes tin so fine  
 and in such quantity as Cornwall. He says it was the only product of the  
 island exported, before the descent of the Romans: that the natives traded in  
 it with the Phœnicians from the remotest antiquity: that they sent it in boats  
 of ozier covered with skins to the isle of Wight, and thence to the nearest  
 coasts of Gaul; whence it was carried to Marseilles, where the Phœnicians  
 bought it, and transported it to every place, to which their commerce reached.  
 See his *Fossils digested into Method* (*Lond.* 1728. 8vo) p. 52. But on what au-  
 thority he advances this I know not. “In *Childrey’s Natural History of Eng-*  
 “*land* it is asserted that the tinnerns frequently find in the deepest Cornwall  
 “mines, sometimes forty or fifty fathoms under-ground, large entire trees,  
 “which the historian thinks were placed there at the deluge. There are found  
 “also in some places of the mines, he says, mattocks with handles of box-  
 “wood, holly, or hartshorn, often little heads of copper nails; also a copper  
 “medal of Domitian was got there, which confirms that the Romans wrought  
 “there.” Vide *Savar. Dict.* i. p. 1891.

Tin ores are of different colours: but the richest are black or brown, which  
 are specifically heavier than the ore perhaps of any other metal, though tin is  
 the lightest; because composed of arsenic and tin almost entirely. Vide *Cramer*  
 tom. i. p. 217, for the ores; and tom. ii. p. 183, &c. for the processes of se-  
 paration of the tin from them.

“In Cornwall, says Mr. Ray, the tinnerns find the mine shoad, or as they  
 “call it squad, which are loose stones of tin mixed with the earth—The vein  
 “or load is sometimes not a foot thick.—Sometimes three feet or more. They  
 “break the mine with hammers, into pieces not exceeding 15ß or 16j. then  
 “bring it to the stamps, where it is broken to a powder and washed again and  
 “again; and then smelted at the blowing-house with charcoal only; first  
 “throwing on the charcoal, then upon that the prepared ore, called black tin,  
 “and so interchangeably into a very deep bin, which they fire, blowing con-  
 “tinually with great bellows, moved by water. The melting tin, with the  
 “slag, runs out at a hole, at the bottom of the ring into a stone trough.  
 “The cinder or slag swims on the top of it, like a scum, and hardens pre-  
 “sently, this they take off with a shovel, and lay it by, to be afterwards  
 “stamped.

“ stamped and melted down with fresh ore. They get a good quantity of  
 “ tin out of it now, though formerly it was thrown away as useless. The  
 “ metal they cast into oblong square pieces; the lesser they call slabs, the  
 “ greater block. Two pounds of black tin ordinarily yields one pound of  
 “ white tin, or more.” Thus Mr. Ray, *Ep.* p. 180.

“ The stamping-mill goes by water, with such stampers as paper-mills have.  
 “ The stones are so disposed, as that, by degrees, they are washed into a latten-  
 “ box with holes, into which the stampers fall: by which means they are  
 “ beaten pretty small, and by the water passing continually through the box,  
 “ the ore through its weight falls close by the mill, and the parts not metal-  
 “ line, which they call causalty, are washed away by the water. The causalty  
 “ they throw into heaps upon banks, which in six or seven years, they fetch  
 “ over again, and make worth their labour. But they observe that in less time,  
 “ it will not afford metal worth the pains, and at the present none at all.” Vide  
*Dr. Christ. Merret's Relation of the Cornwall Tin Mines*, and *Phil. Trans.* No. 138,  
 for March 1678, p. 949, 952. He says also, that he saw an assay made of  
 some ore, from one of these mines, as was said, whereof lb x. yielded 3ij. 3ij.  
 of fine silver. “ Aurum eruitur ex stanno, at parva quantitate.” *Mer. Pin.*  
 p. 208.

“ Tin consists of an inflammable sulphur and some arsenic, as the smell of  
 “ its vapours, and its effects on metals evince, and of a vitrifiable or crystal-  
 “ line earth. Thin plates of tin, thrown into nitre in fusion, fulminate. In  
 “ the fire it emits white vapours, which may be collected into flowers. The  
 “ calx of tin put into nitre in fusion, melts like tin uncalcined; but in the  
 “ focus of the speculum ardens on a coppel per se vitrifies. Stanni puri 3ij.  
 “ afford of a very white calx 3ij. 3ij. gr. lvii. so is increased in weight more  
 “ than  $\frac{1}{2}$ .” Vide *Mr. Geoff. on Tin*, *Mem. Acad. R.* 1738, p. 142. See also  
*Mr. Savary's Dict.* i. 1890-1894, and 3. part. 2. p. 57, 59, where are many  
 things worth knowing.

“ Stannum solvit argentum, aurum, cuprum facile; reddit vero hocce me-  
 “ talla, si æquali vel minori copia cum eo colliquescent, fragilia admodum,  
 “ præprimis argentum, quod a nimia stanni copia admista, instar vitri reddi-  
 “ tur: si vero longe majori copia ingreditur massas metallicas, manent hæ  
 “ utrunque flexiles, e. g. stanni p. x. (*Macquer* has it part xx. *Ch. Tb.*  
 “ p. 94.) cupri p. i. fusione mixtæ, exhibent massam rigidiorum puro stanno  
 “ quæ tamen adhuc tractabilis manet: quo artificio utensilia ex stanno fiunt  
 “ longe durabiliora. Cupro (here is wanting the quantity. Should it be cupri  
 “ p. x. stanni p. i? certainly) si stanni p. x. adduntur, & simul aurichalci vel  
 “ zinci pauxillum, nascitur inde campanularum, & tormentorum bellicorum,  
 “ metallum fragile & maxime sonorum, &c.” Vide *Cramer.* i. 28-30. Ac-  
 cording to *Savary* l. c. gun-metal is made of cupri puriss. lb. c. and stanni  
 lb. vi, vii, or viii; Bell-metal of cupri lb. c. & stanni lb. xx; Statue-metal  
 cupri lb. c. stanni lb. iv.

“ If one part of tin be mixed with ten parts of copper, and a little zink be  
 “ added, the composition becomes hard, brittle, and very sonorous, of which  
 “ bells are made, it is called bronz or airain.” *Macq. Elem.* p. 94. Tin unites  
 “ easily with all the metals, lead only excepted; but destroys their malleability,  
 “ if so much as exposed to its vapour when in fusion.” *Ibid.*



## S T A N N U M.

## S E C T. II.

Tin is called hepatic and uterine; and is commended in hysteric and hypochondriacal distempers. But in its metallic state I know no effect it has, except as an anthelmintic; and a more sovereign remedy for worms, than the powder of tin, the *Materia Medica* I believe cannot afford.

“Præterquam quod epati convenit, uteri morbis peculiariter quoque dicatur.” *Schroder.* p. 400, 402, where you have stanni purgatio; calcinatio incinerationis, reverberationis, immersionis unde sal magisterium, & vaporosa; distillatio, sublimatio, extractio, salificatio & mercurificatio.

“In medicina usus ejus rarius est; quibusdam siccandi & refrigerandi vim ei tribuentibus, quibusdam calefaciendi & humectandi. Hepati dicatum quidam volunt. Sunt qui ejus pulverem in potu exhibeant contra ictus scorpio-num. Chymici salem & alia ex eo conficiunt.” *Worm. Mus.* p. 124.

“Internus stanni usus rarus est: ejus vires adversus uteri, & pulmonum affectus, a quibusdam prædicantur. Præscribitur ejus limatura a ʒj. ad ʒj. per plures dies.” *Geoff.* i. 284. “Præterquam quod epati convenit, uteri & cerebri morbis peculiariter quoque dicatur.” *Dale, (è Schrodero)* p. 35. “Fumus stanni nocet ut fumus plumbi; acrimonia sua asthma inducit, &c.” *Nucl. Belg.* p. 278.

1. It has neither taste nor smell; and though all our victuals are dressed in tinned vessels, as well as eaten off tin plates and dishes commonly, yet no taste, no bad quality is thereby communicated to them.

2. It is not dissolvable in any animal or vegetable juice, unless it be first calcined, and then only in acids. Hence though taken in powder to ounces, it occasions no uneasiness, no bad symptom whatsoever; whereas dissolved it is somewhat bitter. “Solutio quodammodo amaritat.” *Boerb. Chem.* ii. p. 474: And its salt is emetic.

3. The pewterers are not subject to any peculiar diseases from their working in this metal, that I ever heard of: yea the tanners in Cornwall who labour in the mines, and prepare and smelt the ore, are as strong and healthy as other people. Its vapour therefore cannot be very noxious.

“Stannum igne fortiore tractatum vel mineras ejus fusas & præparatas emittere exhalationes, quamvis non tam copiosas quam saturnus, nemo negabit. Easdem non adeo noxias esse, ut potius salubres sint, confirmat Boyle (*Tract. de salubritate & insalubritate æris*) dum scribit, illos qui in stanno Anglicano laborant, sanos & vegetos esse, & raro morbis corripi: iisdemque in locis ubi minere joviales effodiuntur, plantas lætissimo pre-ventu progerminare.” *Fr. Hoff. Metalur. Morb.* p. 37. Vide etiam infra.—“I have known it observed, that over some tin mines, in the western parts of England, not only trees, but far more tender plants, as grass, are wont to grow, and flourish: and it is likewise observable about those that constantly dig in those tin mines, that they do not lead a short and sickly life, as in

“ many others, but arrive at a great and vigorous age.” *Boyle, of some causes of the insalubrity and salubrity of the air. Prop. i. vol. iv. p. 277.* Let arsenic, or whatever else is hurtful, be in tin, it matters not, since it is so locked up, or fixed by it, as to discover no virulency, or produce any bad effect. “ *Stannum & arsenicum ad ignem mixta, cito dilabuntur in cineres, arsenici parte sat pertinaciter stanno adherente.*” Vide *Cramer. i. 33.* “ *Stanni limatura flammæ candelæ inspersa accenditur, flammam candelæ cæruleam reddit, & fumum emittit cum odore sulphureo allium leviter redolente.*” *Geoff. i. p. 283.* And *reſte*, excepting the smell: for though I again and again made the experiment, I could not discover any thing like the smell of garlic; the freeing it of that mineral being absolutely necessary to its reduction. “ The tin ore is known to be sufficiently roasted, in order to fusion, when no more fumes rise from it, when it has lost the smell of garlic, and when it does not whiten a clean plate of iron held over it.” Vide *Macq. Prat. i. Sect. 2. c. 5. Proc. 1.*

4. Although the powder of tin effectually expels worms, if finely prepared, it does not kill them commonly; but if its particles be left pointed it may wound them. And

5. That, however much the virtues of tin or its preparations may be commended in various diseases, they seem not to be well attested. The *sal jovis* præstantissimum ac præsentissimum est remedium, in uteri suffocationibus, quas ad miraculum compescit, tam intrinsecus, quam extrinsecus adhibitum. Commendatur itidem extrinsecus ad omnia ulcera fætida, fistulas; cancrum, & alia esthiomena. Dosis gr. ij. iij. iv. &c. repetitis vicibus. Magisterii vires eædem.” *Schrod. p. 400.*

“ *Sal jovis* is commended chiefly as a cosmetic in pomatums, but it is often given inwardly in nervous cases, and particularly convulsions and epilepsies, from gr. ij. to viii. I have known two or three extraordinary instances, where the success could be ascribed to nothing, besides this medicine. To young children it is apt to make them puke, which is never the worse. There is not a more efficacious anti-epileptic. It is not indeed agreeable in any liquids, but passes down conveniently enough in a bole.” *Quinc. Disp. 246.* “ In uteri suffocationibus & affectionibus hystericeis commendatur, a gr. ij. ad vi.” *Geoff. i. 284.* But the *sal jovis* we get from London, as I am informed, has nothing of tin in it; it is rather a *sal saturni*, being made of lead and alum. All the *sal jovis* prepared here is strongly emetic.

6. It is generally agreed among authors, that the magistery, salt, and some other preparations of tin are drying, astringent, and cosmetic outwardly used; to which if we add their emetic quality when inwardly taken, and compare tin with bismuth, in their fusibility, and their effects on metals, we shall find that there is a considerable affinity between them. Vide *Cramer. i. a p. 28. ad 36.* *N. B.* There is no *sal jovis* in the *New Lond. Disp.* nor was it in any of the *Old.* In our Dispensatory it was made up of the calx jovis dissolved in aq. regia diluted sextuplo aquæ, edit. 1722; octuplo aquæ, edit. 1735, and 1754, which the edit. 1756 retains; but here it is not crystallised: so that is a magistery. Vide *New Disp. p. 326.*



## S E C T. III.

Tin in powder may be given to ounces. The preparations are *sal jovis*, *antihecticum poterii*, & *aurum mosaicum*.

Tin is reduced to a powder either by rubbing it in a mortar; (Mr. *Coulter* melts the tin, pours it into a heated iron-castpot, and with a large iron pestle stirs and rubs it hard, till it become solid, by which means part of it is powdered; and what is not, he again melts and proceeds as above. For tin just hardning is brittle or somewhat friable, as has been observed. March 5, 1753, Mr. *Coulter* prepared this powder before me thus: The block tin being melted, is poured into a pretty large iron-pot, considerably heated, and with a large iron pestle also heated, it was rubbed strongly in the pot, and constantly, till it was almost all reduced to powder; which for 4 or 5 lb. of metal, took up about half an hour)—or shaking it in a wooden box until it grow cold, after it is melted; it being pretty friable when it is just coagulating. Vide *Lem. Chym.* p. 122. or *Quincy's Disp.* p. 248. In the *London Disp.* p. 57. it is called *stannum pulveratum*. It is usually prepared in the box; but the mortar is more expeditious, and commonly used here. This is so successful for worms in the intestines, that it deserves as well to be called a specific, as any simple that I know. I became acquainted with it thus:

One *Mary Martin*, relict of *Will. Nicolson*, vintress in *Edinburgh*, having been long troubled with the fluke-worms, in 1717, as I remember, consulted me about them. I advised what then I thought proper, but she received no benefit thereby. In 1718, when I was in *Holland*, she got a receipt from a gentlewoman in *Leith*, which effectually freed her of these vermin. She told me the gentlewoman's name, but not having an opportunity to use it for several years, I forgot her name, and so could not trace the prescription any further, Mr. *Nicolson* being dead before I experienced its success. It was since 1719, if I remember right, and not very long after, that I got this empirical receipt from Mrs. *Nicolson*, which upon trial I found so successful, that I can recommend the powder of tin as a most valuable remedy for this loathsome disease. The receipt was in these words following:

“A Receipt for the Fluke-worm.”

“Take an ounce and an half of pewter metal, and grind it small to powder;  
“take half a mutchken of treacle, and take your powder and mix both together. The Friday before the change of the moon, take one half of it;  
“and the day thereafter, take the half of the other half; and the Sunday thereafter, the rest of it: on the Monday purge.”

This is the whole receipt verbatim: and although it does not appear to be the prescription of a physician; and this powder never used to be given in so large a quantity; yet there appearing no danger in the experiment, its success on Mrs. *Nicolson* encouraged me to try it, so soon as a fit opportunity offered: which I accordingly did, and found it succeeded, even beyond my expectation. And

Thus I use it for the *tania intestinorum prima plateri*, or tape-worm; and *tania altera*, *ejusdem* (*Prax.* 3. c. 14. p. 897.) that is the gourd-worm or fluke-worm.

*worm.* To full grown persons I give two ounces of the powder of pure unmixed tin, or block tin, pass'd through the finest hair sieve or seirce, of the shops, mixed with eight ounces of the common treacle or molasses, as directed in the receipt; having first purged the patient, the preceeding Thursday, to empty the guts, with an infusion of fenna and manna in a decoction of grass roots, such as *R. Fol. fennæ ʒij. mannæ calabr. ʒß. affunde aquæ bullientis, in qua rad. graminis ʒij. vel iii. prius decoctæ fuerunt, lbß. stent per noctem: colaturam tæpescantam capiat die Jovis mane vacuo ventriculo.* On Friday morning I gave the patient, whilst fasting, half of the mixture or an ounce of the powder, in four ounces of the molasses; on Saturday morning half an ounce of the powder in two ounces of the molasses; and as much, or the remainder of the mixture, on Sunday morning. On Monday he is purged again with the same infusion.

Though there is nothing in any particular day, or time of the moon, more than in another, yet I thought it not amiss at first, to follow even in this the directions of the receipt; and finding the medicine to succeed thus so well, I continued it so for some time.

I had only once an opportunity of giving it for the tape-worm; it was to a woman about thirty, who, having been long troubled with this disease, had taken many medicines for it, and among the rest small quantities of this powder frequently, but all in vain. She had often passed fragments of the worms, and was far gone in a hectic consumption. The powder, which she took as above, seemed to bring away all that remained of this tænia; for she was never more troubled with it; the consumption however continuing, carried her off.

I have prescribed it several times for the gourd-worm, and it never failed to compleat the cure. I shall mention but one remarkable instance.

A man about thirty-six years of age, who had laboured under this distemper several years, had taken almost the whole class of anthelmintics, by a late very learned (and liberally-prescribing) physician's order, to no purpose; for, as he told me, he always past fewer worms, when he took the medicines, than at other times he used to do. By my advice he took the powder as above, and was cured in five days.—The first purgative brought away a few. None appeared the three days he took the powder in the melasses, nor with the first stool, after the second purgative; but in the second stool, he said he thought all his guts were coming away, and that it was all crawling full of these ugly vermine. For his own satisfaction, I made him repeat the course a month after; but not so much as one worm was to be seen in his stools, nor did he ever observe any afterwards.

I need not say any thing of the use of this powder, against the *lumbrici teretes*, or common long and round worms, it being sufficiently known, and in common practice. One thing however deserves to be remarked, viz. that it is the most immediate cure, that I know, for the pain in the stomach, which these worms sometimes cause, though commonly it brings them not away for some days. The dose of this medicine for children is to be regulated by the same rules as purgatives and medicines are.

Though the powder of tin may be several ways hurtful to worms, yet its efficacy seems chiefly to depend on its getting betwixt them and the inner coat.



coat of the stomach and intestines, so as to make them quit their hold; so that purgatives easily carry them away with the fæces.—This account of the anthelmintic virtue of pulvis stanni was published in the *Med. Essays*, vol. v. p. 89, 92. anno 1742. Since then I have given the medicine without any regard either to the day of the moon or of the week; and it proved every way as effectual a cure, as when the directions in the receipt were exactly followed. I have also had several accounts from others of its wonderful effects; and among the rest, of a vomiting of blood cured by it, like a charm, as it was expressed; and of its success in the tape-worm, though it sometimes requires to be repeated in this kind; which I never knew necessary in the gourd-worm, if taken in sufficient quantity, on which a great deal depends, and as directed above, whatever day the course was began. I said the powder may be several ways hurtful to worms; for it may fret them into spasms, or may stop perhaps the tracheæ, if they have any, &c. but I could see none of it within some of the fluke kind, which I cut up. They come away generally alive; so it seems to act on them most probably in the manner above related.

“The experiments on tin, above-related, account sufficiently for its being destructive to those animals; though not for its being safe to the patient.” Vid. *N. Dispensatory*, p. 326. He means its containing arsenic. Yet he commends much the pulvis anthelmint. whereof it is the basis, viz. R Pul. stanni ʒj. Æthiopsis min. gr. x. sacchari gr. vi. M. Vid. p. 518. Is arsenic safe for children? “Stannum (arsenico fusum) maxime redditur friabile et simul resplendens; mistura vero hæc iterum fundi non potest, sed abit in calcem albam absque ulla fusione prægressa.” *Rieger. Introduct.* i. p. 918. But to this day (1758) I could never learn that it was any way hurtful to the young or old, but always as safe as successful in that disease, reckoned by some even hitherto absolutely incurable. Vid. *J. Jac. Neubold Observationes in Append. ad Tom. iii. Act. Physico Medicorum*, viz. Obs. 3. De inexterpabili latorum vermium progenie, p. 150—163. I believe Dr. Hoeffler is the first who ever wrote that tin vessels infected victuals. Vid. *supra* p. 205.

I observed also its curing pains in the stomach, occasioned by worms. I gave once pulv. ʒij. only to a girl of seven years tormented with such pains: it gave immediate ease, although it was several days (I think about six) before any worms came away; but then she discharged a large, long, and round one. Yet she is still alive and well, as are many others.

I have never yet been able to trace this receipt further back than I have already hinted; neither can I find how long the powder of tin has been used for worms. *Felix Platerus (qui obiit. an. 1614, ætat. 78)* is the first author, that I have seen, who mentions any thing like an anthelmintic virtue in tin: but it is only of the water in which melted tin or lead has been several times quenched; and I doubt if either of these will be either so successful or so safe a remedy. And Dr. *John Quincy's Compleat English Dispensary* is the only book in which I find the pulvis stanni recommended for worms.

“Aquam in qua plumbum aut potius stannum, aliquoties in igne carbonum fusum, extinctum fuerit, tepide propinatum ad enecandos omnis generis intestinorum vermes, promptissimum remedium esse, experientia me docuit.” *Platerus Prax.* iii. p. 886.

Since

Since writing what is above, I have been informed, that *Paracelsus* has, in his book *De Preparationibus*, several preparations of tin, and particularly for worms. “*R Stanni ℥ij. salis communis ℥iv. asphalti. ℥j. F. pulvis cum adustione. Dosis a ʒß. ad ʒij.*” Contra vermes. “*R Hujus stanni præp. ℥j. sem. colocynth. et plantag. aa ʒvj. F. pulvis. Dosis a ℥j. ad ʒiß.*” These are in *Oper.* vol. ii. p. 82. This last cannot be taken to ℥j. far less to ʒiß. as here ordered; for ℥j. must contain more than ʒij. sem. colocynthidis, which is quadruple the dose I dare give any man.

“This powder of tin with some is a secret against worms, and is particularly destructive to them. They give half a drachm of it in conserve of Roman wormwood, made into a bole, after the use of mercurials, against the joint-worm.” *Quincy’s Pharmacop.* p. 246. “*Pulv. Vermifugus.* Take powder of tin, coralline and worm-feed, aa ℥j. savine and saffron ana ʒj. mix f. a. This is almost an infallible remedy against worms, though it hath not till now been publicly described, notwithstanding it has been long in the practice of some, who have been acquainted with it. This composition does not purge, and therefore may be given almost in any circumstance, without any prejudice, from gr. x. to ʒj, as the usual dose, every night, in any convenient vehicle.” *Ibid.* p. 442.

I am informed also, that one Dr. *Heron*, a Physician at *Galloway*, who had been long in *Germany*, and died about the beginning of this century, first taught the late Mr. *Coulter* how most expeditiously to powder tin; whose receipt and son continue still to prepare it dexterously. What I used was got from them. They are now dead: but Mr. *Ballantine*, married to a daughter of the old man’s, continues that business.—But, to proceed to the preparations mentioned:

1. *Sal jovis offic.* is a solution of calcined tin crystallized, or a vitriolum stanni: for the metal is first calcined (and stanni ℥xvj. give calcis ℥xvij.) then dissolved in sp. aceti, or in aq. regia diluted (octuplo aquæ, as in *our Pharmacop.*) evaporated to a proper consistence and crystallized. *Lemery* thinks the salt that is got by evaporation as good as that by crystallization. Sp. nitri by itself makes no impression on the calx of tin. *Vid. Lem. Chym.* p. 123—126.

Inwardly used it is emetic; outwardly it is drying and astringent. It is commended in the epilepsy, hysteric fits, &c. Dose gr. v. “It is desiccative, mixed with pomatums; and may be used for tetters.” *Lem. Chym.* p. 125. “Magisterium stanni (in aq. regia soluti) datur hypochondriacis hystericisque a multis medicis pro remedio singulari. Minus amo hoc metallicum. Tutiora presto sunt eidem proposito. Sed unguento pomato debite mista celebre dat cosmeticum faciei ulcerosæ.” *B. Chem.* ii. p. 474, 475. — Thus it agrees with bismuth also, and antimony; and is much safer than lead.

2. *Antibædicum poterii offic.* diaphoreticum joviale, *Lem. Chym.* 132. *Geoff.* i. 285. is a calx of tin and antimony, washed into a greyish white powder; insipid and no better than the common diaphoretic antimony; and, with the bezoar joviale and aurum mosiacum, as useless, expunged *our Pharmacopœia, edit.* 1756. For reguli antimonii martial. ʒvj. stanni ℥ij. melted together, powdered and calcined with nitri ℥xxvij. again powdered, and by repeated lotions freed of the adhering salt, produces this powder. The proportions of the tin and regulus vary in authors: but a triple quantity of nitre is always taken. Hence the antimony is as much calcined and fixed as in the washed diaphoretic anti-



mony, and no doubt the tin also; for this antihectic has no sensible effects. It is commended in too many diseases to do service in any. "It is used for diseases of the lungs, liver, and uterus; for the small pox, malignant fevers, and in other cases where it is necessary to evacuate the humours by perspiration. It may also be given to stop gonorrhœas, fluxes, and hæmorrhages. The dose is from gr. x. to ʒij." *Lem. Chym.* p. 132. "Dosis a ʒß. ad 3j. in febribus malignis, tabe, phthisi, et sanguinis expuitione. Salsam sanguinis et humorum crasim corrigit, ac demulcet." *Geoff.* i. 285. "This is accounted a forcible penetrating medicine, inasmuch as to make way through the minutest passages, and search even the nervous cells.—In heaviness of the head, giddiness, and dimness of the sight, whence proceed apoplexies and epilepsies, it does great service. And in all affections and foulnesses of the viscera of the lower belly, it is reckoned inferior to nothing: (He commends it in the jaundice, dropsy, cachexy, venereal cases, blotches, ulcerous deformities, and adds) in short, there is hardly a preparation in the chymical pharmacy of greater efficacy in most obstinate chronic distempers. But it is not often met with in prescription. Dose a gr. vi. ad xx." *Quincy Pharmacop.* The bezoardicum joviale offic. is as good as the antihecticum, and no better. *Vid. Bez. Miner.* under the article *Antimony*.

3. *Aurum mosaicum offic.* Purpurina, et aurum mosaicum. *Canip. de Atram. Descrip.* v. c. 21. p. 325. Aurum musivum. Mosaic gold. *Pemb. Dispens.* p. 220. Aurum mosaicum. *Pb. Edin.* p. 172. A. musivum vel musicum quorundam. *Geoff.* i. 285. "Aurum musicum quod aliis musivum, vulgo mosaicum dicitur, forte ex eo quod similitudinem habere videatur cum eo auri facitii genere, quo veteres musicarii utebantur in operibus suis musicis." *Charlt. Fossilia*, p. 56. § 20. et *Bib. Pharm.* ii. p. 1023. *Mosaic gold* is a spongy, light, soft, shining gold-coloured substance, prepared by subliming a mixture of an amalgama of tin and quicksilver, sal. ammoniac, and flowers of sulphur. "Invenietur aurum musivum sub materia sublimata, cum sordibus quibusdam in fundo (matracii)." *Pharm. N. Lond.* "The mosaic gold will be found under the part sublimed, with a small quantity of foulness at the bottom;" (viz. of the matras in which the sublimation is ordered). *Pemb.* l. c. "There will be a dirty sublimate, which must be put away, and the aurum mosaicum will remain at the bottom of the matras." *Quincy*, p. 247. The process is to be found in all the authors or books mentioned: but they vary much in proportioning the ingredients. There are two processes for the *sol musivus* in the *Coll. Chym. Leid.* p. 419. by *Maetsius*, where the ingredients are the same, but without sublimation, only reduced to a powder.

"Aurum mosaicum fit ex stanno, mercurio, sale ammoniaco, & sulphure, mixtis et sublimatis s. a. sudorificum est nobile. Dosis ad gr. x. vel xii." *Phar. Bat.* p. 21. "Chymicus quidam usus est in asthma sicco." *Alb. M. S.* "Its operation is sudorific; it is good in all chronical and nervous cases, and particularly in convulsions of young children. Dose from gr. iv. to ʒ." *Quincy Phar.* "Diaphoreticum existimatur a. gr. x. ad xx. in hysteris affectibus, morbis hypochondriacis & febribus malignis." *Geoff.* i. p. 285.

I own that I am at a loss yet to know what it is, and what it is good for; if it be good for any thing except for painting: for in this process one would think, that all the mercury and sal ammoniac will sublime, as also the sulphur,

if the vessels be close, the salt carrying with it part of the tin; if so, then some dross, with the rest of the tin calcined, only remains. But then it would be specifically heavier. However, it has neither taste nor smell; does not dissolve in, or tincture, water or spirit of wine. What effect have acids on it? None at all: neither acetum, nor sp. vitrioli, jointly or separately, make any change; neither does ol. tartari.

What I have said concerning this, I have gathered from the ingredients and processes, though but lamely delivered. And I am glad to find, by a full account of the operation and the products, which Mr. Lewis, M. B. and F. R. S. has given in his *Pharmacopœia* (of the R. C. of Physicians at Edinburgh, with useful notes, &c. printed at London, 1748, in 8vo.) p. 306—308, that I was in no mistake concerning this whimsical preparation. After the process, he adds, “From the foregoing account it appears, 1. That the q. s. is united with the sulphur into a true cinnabar; and that none of it is retained in the aurum. 2. That the s. ammoniac sublimes from it entirely, and partly escapes at the orifice of the vessel. 3. That the sulphur partly unites with the mercury, and partly escapes in fume, some small portion of it being retained by the tin. . . . From the whole we conclude, that this elaborate medicine is no more than a calx of tin; and that it may be used with safety as such for medicinal purposes.”—N. B. In this process, Stanni ʒvj. were taken, and there were auri mosaici ʒvj. and near ʒiv. which being reduced to tin did not fall so far short of the original weight as might have been reasonably expected. He says also, that “upon roasting it in an iron ladle over the fire, and stirring it all the while, it smoked a little, and soon exchanged its golden hue for a dirty one, not unlike tin when lightly calcined.”

## L E C T U R E XXIV.

### OF WATER and SALTS.

#### A Q U A.

#### S E C T. I.

**A**QUA, *ὕδωρ*, is one of the elements with the chymists, as well as the ancient philosophers. “Aqua, quasi aqua vivimus; et unda, quasi unde sunt omnia, secundum *Thaletem*.” Sic *Festus*. “Every one knows that water is a transparent, insipid substance, and usually fluid; but in a certain degree of cold becomes solid; which therefore seems to be its natural state.” *Maquer. Elem. i. p.* In the *Art. Physico-Med. tom. vii. edit. in 1744. p. 445.* we have *Jo. Christiani Kundmani*, “*Donus per quam mirabilis, cum circumpositis tormentis bellicis, omne simul suppellestili instructa, petropoli, undique ex glacie formata. An. 1740.*” But what water is, is not easily known. “*Quis unquam mortalium novit quid sit aqua, quæ tamen creatorum est maxime obvia, aperta, visibilis et translucida. Tantum enim de*”



“ ea scit rusticus vel idiota, quantum phylosophus.” *Helmont de Anima*, § 6.  
 “ Illi, qui sollicita cum cura, ingenium aquæ intelligere satigerunt, vix invenere  
 “ ullam rem in rebus naturalibus, quæ difficiliter cognoscitur.” Vid. *B. Chem.* i.  
 The far greater part of all animals, as well as of vegetables, consists of water; and without it neither can be nourished nor live. Of this more hereafter.

That water, which is most transparent, without colour, taste or smell, specifically lightest, dissolves soap well, makes the least impression on filings of copper, and leaves the least sediment after evaporation, is the purest, and consequently the best water; that is, the fittest for all the uses to which it is commonly applied.

But where absolutely pure water can be had, if it is at all to be had, I know not; neither how many different substances, salts, earths, stones, metals, sulphurs, &c. may be mixed with or impregnate it. Only it is pretty certain, that snow-water, not sullied with smog, &c. is the lightest, and has the best claim to all the other properties of the purest water, especially if artfully once distilled. Vid. *B. Chem.* i. Next to that is rain-water; then river, lake and spring-water, in the order mentioned; though each of them admits of very different degrees of purity.

“ Soap, says *M. Macquer*, may serve as a touch-stone for trying the purity  
 “ of water. For (a) if there be any acid in the water, it unites with the al-  
 “ cali of the soap, and in part decomposes it: (b) If a salt, composed of a  
 “ vitriolic acid and earthy basis, the acid leaves the earth and joins the alkali  
 “ as before. Hence selenitic and aluminous salts, as well as vitriolic, make  
 “ water hard, as are most mineral waters. (c) Even such mineral waters as  
 “ contain only neutral salts, as sea-salt, Epsom-salt, Glauber’s-salt, are also hard  
 “ with regard to soap, though the acids in them are united to alkaline bases,  
 “ and so not in a condition to decompose soap: because, both the principles  
 “ of which they consist, having a very great affinity with water, and only one  
 “ principle of soap being dissolvable in it, but not the other, such salts are  
 “ more dissolvable in water than soap, and dissolvable so as to exclude its so-  
 “ lution.” *Dissolubiles a son exclusion.* Hence wine dissolves soap but imper-  
 fectly, because it contains an acid. Rectified sp. vini dissolves it also, but not  
 compleatly, unless it contain water enough to dissolve the fixed alkali. Brandy  
 therefore, or proof spirit, is the true and compleat dissolvent of soap, if quite  
 free of acid, which it is not. But if crystal. salis kali 5j. be mixed with  
 sp. vini gall. ʒiiiiß. it will compleatly dissolve 3x. saponis albi.” *Macquer Chym.*  
*prat.* ii. p. 35—46.

## S E C T. II.

Water dissolves the fluids, relaxes the flexile solids, corrects acrimony, quenches thirst, and promotes the fluid secretions. Hence it is an excellent remedy in all diseases where the fibres are too rigid and elastic, or the fluids too thick or acrid; as well as a necessary vehicle to many other medicines. . . . For as it is free of all acrimony, so it is the proper dissolvent of all salts, gums, soaps: it softens and relaxes animal fibres; dilutes animal juices; and constitutes more than  $\frac{3}{4}$ , perhaps  $\frac{7}{8}$ , of our bodies;  $\frac{5}{8}$  of our muscular flesh being nothing

nothing but water. Vid. *Mem. A. R.* 1730. p. 79. Hence it is of great use in all acute, and in many, or rather all chronic distempers. I am no admirer of Dr. *Hancocks's* practice, who pretended to cure all sorts of fevers, whether continued, intermittent or malignant, with a pint or two of cold water: nor of the *Meltese Friar*, who made it a panacea, and poured it into his patients at the rate of 10 or 12 pints or more in twenty four-hours; "et diætam peraufteram præscribit, ita ut nonnullis ægrotantibus per viginti 30 imo 60 dies solam aquam pro alimento præbuerit, jusculis aut alimentis quibuscunque interdictis; et sanati fuerint. Nonnullis in ipsa dysenteria, aut in viscerum abdominis inflammationibus enemata ex aqua gelida injecit, non solum innocue, sed salubriter. Nec sudorem ut Dr. *Hancock* expectat; imo quantum fieri potest, impedit ne ægrotantes, post aquæ frigidæ potum, sudent." *Geoff.* i. p. 51. who condemns aquam frigidam seu gelidam; which he says is "nervis inimica; partium internarum torporem et paralyfin inducit; colicos dolores excitat, &c. &c." p. 50. But if it be not colder than the common air, there is seldom any danger from its use in healthy persons, unless they be over-heated with exercise, &c. N.B. *Obs. Jo. Gottlieb de Botticher, de frigidis quandoque salubritate calida superantibus. Act. Phys. Medicorum, tom. viii. edit. 1748; and P. Margraffius, de Terra aquæ essentielle. Act. Berolin, an. 1756.*

Yet I must own, that I think more diseases may be cured by water and fasting, than by any one medicine: and that the effects of mineral waters depend not a little on the aliment; nay, often are more owing to it than to the minerals it contains. The same may be said of tar-water. For mineral waters are far more successful in the cure of diseases than the minerals impregnating them. (a) Waters impregnated with different minerals, as common salt, vitriol, sulphur, alum, &c. are found sometimes equally effectual in the same disease: (b) and some very valuable mineral waters yield nothing, by any distillation, different from rain or snow-water. I might add lime-water is inferior to none of them.

These things being well considered, together with the effects of heat and cold, and the nature and qualities of the minerals impregnating the waters, it will not be very difficult to make a right judgment of the virtues of the many medicinal springs, with which almost every country abounds, as well as of hot and cold bathing, without perusing the many volumes that have come abroad on these subjects.

In the *Miscell. curiosa Decur.* 3. An. 3. p. 29. *Obs.* 25, 26, 27. there are instances given of various diseases cured by drinking cold water, such as the arthritis, diarrhœa, dysenteria; yea, and of a dysentery cured by a cold bath. And the *Ill. Fred. Hoffman*, in his *Dissert. Physico-Medicæ*, has one (*Dec.* 2. No. v. p. 200—240. edit. L. B. 1719.) *de aqua medicina universali*; wherein he affirms, and proves at great length, "Quod si medicamentum, in universa rerum natura datur, quod universale appellari meretur, certe illud non aliud, nostro quidem judicio, est quam aqua communis; utpote sine ejus usu, nec vivum, nec integrum corpus nostrum manere potest. Quin et omnis generis morbos corpore arcet, sanumque illud tuetur, et ab omne corruptione, quæ vitæ inimicissima est, defendit, &c." p. 201. He shews that water-drinkers live commonly longer than those who drink wine or beer; that it is indicated in



in all chronical, as well as acute diseases; is the most proper and wholesome drink for every age; that many of the most famous medicinal springs owe their virtues to, yea are nothing but, pure water; and quotes from authors a variety of diseases cured by water alone, as mania, melancholica, tabes, cachexia, obstructi menses, diseases of the head (quos capitis imbecillitas torquet, usus aquæ frigidæ prodest; iis etiam, quos assiduæ lippitudines, gravedines, defillationes, tonsillæque male habent, *Cels.* i. c. 5.) morbus comitialis, podagra, nephritis, &c. And I am far from being afraid of its hurting the coldest constitutions or weakest stomachs, if judiciously accustomed to it. *Vid. Hist. of Health*, p. 355. see also *F. Hoffman Dissert.* vi. *De Acidularum et Thermarum, ratione ingredientium et virium convenientia*, p. 241, 288.

And since sea-water is now found to be a cure for diseases, which sea-salt was blamed for, let us examine sea-salt.

## S A L.

## S E C T. I.

1. Sal gemmæ, & sal. fossile offic. sal fossilis qui & sal. gemmæ in officinis dicitur. *Worm. Mus.* 20. Sal Gemmæ offic. *Charlet. Fossil.* 7. Sal. gemmeus, *Aldrovand. Mus. Metal.* 301. *Dale*, 26. Sal cibarius fossilis et gemmeus, *Geoff.* i. p. 99. Sal-gem, or the purest fossile salt, is a white pellucid crystalline salt, of a pungent salt-taste, more acrid than our common table salt, digged up in many places of the world. There are salt-pits in Egypt, India, Persia, Ormus, Hungary, Poland, Germany, Spain, Italy, &c. and the salt is sometimes so hard, that, it is said, houses are built of it. "Oppidum Gerra 5 mille passuum amplitudine, turre habet ex salis quadratis molibus." *Plin.* l. vi. c. 28. p. 130. "Carrhis, Arabiæ oppido, muros domosque massis salis faciunt, aqua ferruminantes." *Ibid.* lib. 31. c. 7. p. 758. "De Polonico sale hoc habet Cromerus in descriptione Poloniæ," lib. i. "In minori Polonia salem instar ingentium saxorum, adeo duritie lapidea solidum, ferro excindi constat, ut nedum mola teratur ad hominum usum, sed ex illo domos & oppida ædificari." *Worm. Mus.* p. 20. See a relation concerning the sal-gemmines in Poland, *Ph. Transf.* No. 61. p. 1099: also *Savary's Dictionary*, ii. p. 1524. where there is also an account of the Catalonian and Hungarian salt-pits.

"The salt-mines of the village *Wiliska*, five leagues from *Cracow* in Poland, (vilizia, sexto a *Cracovia* lapide distans. *Geoff.* i. p. 100.) were discovered about the year 1252. They are of a frightful depth (200 fathoms, *Phil. Transf.*) and contain a kind of subterranean republic, who have their own laws, their families, public carriages, horses also. Some are born here, and never go out; others take the air frequently. One cannot but admire the long series of lofty vaults, supported by strong thick pillars of salt, cut with the chisel, which appear, by the light of the flambeaus there constantly burning, as if they were of crystal and precious stones of divers colours, and cast such a lustre that the eyes can hardly bear it. The salt is wrought much the same way as the free-stone in quarries, and cut into large cylinders, to be afterwards broken into pieces and milled. There are here

"two

“ two sorts of sal-gem ; one more hard and more transparent, which can be  
 “ cut like crystal, and thereof are made several pieces of work for curiosity  
 “ and devotion, as chaplets, goblets, and small vessels : the other is less  
 “ compact, and serves for common use. One would hardly believe that a  
 “ stream of fresh water should run amongst these mountains of salt, especially  
 “ in the bottom of these pits ; yet there is one, which is sufficient both for the  
 “ men and for the beasts ; and certainly there is nothing more wonderful in  
 “ these merueilleuses salines.” Thus Mr. *Savary*. N. B. There are salt springs  
 in it, according to the *Pb. Transf.* but no mention is there made of fresh water.

“ It is believed in Catalonia that the salt grows, and in time fills up the  
 “ formerly emptied pits. There are there, 1. A white salt, like sea-salt, but  
 “ not in grains : 2. A salt of the colour of iron and slate : 3. One red, like  
 “ conserve of roses ; all of the same nature, and only coloured by boles :  
 “ 4. A transparent sal-gem, of different colours, white, blue, green, orange,  
 “ red, &c. but all white in powder. It is also cut into different figures.  
 “ These four sorts of salt all lie in strata, one above another.” Thus also  
*Savary*. Vid. *Pomet*. ii. 143.

“ There is a salt mine in the mountains of Upper Hungary, 180 fathoms  
 “ deep. . . . The salt is commonly cut into long square pieces, two feet long  
 “ and one thick ; and afterwards milled. The stone-salt is greyish ; but  
 “ there are also salts of different colours, white, blue, yellow, &c. and some-  
 “ times so hard, that they carve them into divers shapes and figures like  
 “ crystal.” Vid. Dr. *Brown's Travels*. *Harris's Coll.* vol. ii. p. 517. also vid.  
 p. 46 and 306. ejusdem.

2. Sal marinus, salt excocted, or got by evaporation from the sea-water,  
 and that either by fire in the salt-pans, which is the sal commune *offic.* or by  
 the heat of the sun, which is the sal nigrum, vel marinum *offic.* Bay-salt. See  
 the process in *Lemery*, who describes it better than *Geoffroy*. The sal. com-  
 munis *offic.* should rather be called sal fontanum, being extracted from salt  
 springs.

“ Sal fossile, fontanum et maris sunt ejusdem naturæ, solvuntur eadem  
 “ aquæ copia, sc. 3  $\frac{1}{4}$ . In aere nostro sponte deliquescunt, crystallos formant  
 “ fere similes, cubicas parallelopipedas vel pyramidales, lentiore vel celeriore  
 “ coactu ; affusæ ad aquam fortem aurum solvunt, vi ignis distillant in spiritus  
 “ acidos ejusdem naturæ ; solutæ in aere humido multum terræ diponunt, et  
 “ liquorem pinguem, acrem austerum relinquunt ; crepitant in igne, fluunt  
 “ igne magno, diu in illo fixi manent, si puri funduntur ; nec tum mutantur,  
 “ nec spiritus fundunt, et parum modo aquæ. Alkali non dant, nec pu-  
 “ trescendo mutantur.” Vid. *B. Chem.* i. p. 43.

Dr. *Grew*, in his experiments on the solution of salts in water, read before  
 the *Royal Society*, Jan. 18, 1676-7, says, That aquæ  $\text{℥ij}$ . without the help of  
 fire, dissolve salis communis  $\text{ʒvj}$ .  $\text{ʒj}$  : but according to Boerhaave's proportion  
 above, aquæ  $\text{℥ij}$ . will dissolve only salis  $\text{ʒiv}$ . gr. liv. Vid. *B. Chem.* i. p. 576.  
 I found they would dissolve about  $\text{ʒv}$ . gr. xvij. The purity of the water and  
 moisture of the salt may cause the difference. I found also that cold water  
 dissolves as much salt as hot water. Vid. Mr. *Petit*, *Mem. A. R.* 1729. p. 319.  
 who, I think, first observed this singularity.



## S E C T. II.

Salt stimulates and strengthens the fibres, attenuates the fluids, resists putrefaction, provokes urine, and opens the belly: and is commended in indigestion, want of appetite, colic and nephritic pains, &c. and externally, as discutient, detergent, and drying for tumors, pains, inflammations, ulcers, and burnings, &c. The common salt is more used in food than medicine; in health than sickness; and the sal-gem almost only in clysters and in gargarisms.

“ Sal commune dicitur *Basilio Monacho* nobilissimum ac optimum aroma. “ *Vires.* Calefacit, exsiccant, abstergit, dissolvit, purgat, adstringit leniter, “ consumit superfluitates, penetrat, digerit, aperit, incidit, venerem stimulat, “ putredini venenisque resistit. Hinc convenit interne in cruditatibus ventriculi, appetitu prostrato, obstructionibus alvi et urinæ, colicis doloribus, “ &c. Externe in ulceribus putridis ac serpentibus mundificandis, in tum moribus simplicibus et pestilentialibus discutiendis, in combustionum ἐμπύρεσιν “ extrahendo, in pruritu et scabie exsiccanda, in fugillationibus et sanguine “ extravasato, resolvendo ac discutiendo, in dolore dentium, colico, cephalico, “ arthritico et simul mitigando, in oculorum pterygio absumendo. Sal gem- “ mæ etsi easdem vires cum sale communi obtineat, substituique eidem queat, “ rarioris tamen usus est in praxi medica, crebrioris in chymica, ubi in solutionibus metallorum sali communi antecellit. Commendatur tamen peculiariter, *Foresti* experientia ad stercorea dura eliquanda, adeoque ad colica “ tormina arcenda, intus et extus.” L. 21. 5. *Schroder*, 467—473. Vid. *Diosc.* l. 5. c. 126. p. 376. abridged by *Schroder*.

1. It is pungent to the taste, easily dissolves and enters the lacteals, circulates perhaps per minima: yet is unalterable by the vis vitæ; and hence our blood, urine, tears, sweat, are all salt; though this is not perceivable in women's milk. *Cur?* An in bile? 2. It preserves animal and vegetable substances, and even water too from putrifying; and is the most universal and common, therefore the most useful and necessary, antiseptic in nature. 3. It is poison to many insects; yet numberless animals cannot live but in the sea. Even salmon grow sick and putrescent, if kept too long in fresh water. 4. It cannot be called either an alcali or an acid; but is a neutral salt, and rather dilutes than thickens the serum; and mixed with fresh drawn blood it prevents, in a great measure, its coagulating. 5. It is of great use, and I believe always has been, to those who feed on animals; as it prevents the too great corruption or putrefaction of several kinds of food, and the diseases consequent. An ancient physician, who attended a pest-house, told Mr. *Boyle*, that, besides his ardent prayers to God, and a very regular diet, his constant antidote was only to take every morning a little sea-salt in a few spoonfuls of fair water, which kept his body soluble, without weakening it, &c. Vid. *Insalub. and salubrity of the Air* in *Boyle's Works*, iv. p. 294. folio edition.

“ Ubi insalutis carnibus homines vesci coguntur, massa sanguinea malignam “ et venenatam induit qualitatem, ex qua scorbutus, febres malignæ pestilentiales, &c. progerminant. quemadmodum, an. 1673. in obsidione *Groeningiana*,

“ *ningiana, a Gallis et Moguntinis facta experti sumus.*” *Hoffman in Schroder.* p. 310. edit. *Margeti.*

“ Sal marinus nec syrupum violarum, nec tinct. heliotropii mutat; cum oleo tartari non effervesceat, neque calcis aquam turbidam efficit. Leve tamen aciditatis signum præbet, si affundatur sp. salis ammoniaci, cujus pel-luciditatem turbat. Infusionem gallarum etiam nonnihil obscurat. Alkalinæ quoque indolis videtur, cum solutionem mercurii albidam reddat, et calidam cum oleo vitrioli effervescentiam excitet.” *Geoff. i. p. 102.*

It has been the opinion of some, that salt is hurtful to persons afflicted with the stone; and of others, that it is rather beneficial to such. “ Imprimis sexagenarium (mihi a distillationibus) immunem a renum calculo servavi annos sedecem, cui alioqui obnoxius erat, largo salis marini usu. Quod deinceps in multis confirmavi.” *Helmont de Lithiasi, cap. iii. § 30. vid. etiam, § 18. p. 15.* Mr. *Geoffroy* thinks salt innocent, but salted meat hurtful in the gravel. “ Quodcunque salis volatilis productionem in sanguine cohibebit, calculorum generationem præpediet. Verum id præstat sal marinus: è contrario muria, cum ad salis alcali volatilis naturam accedat, non modo hanc calculi causam non destruet, sed etiam illam magis ac magis fovebit. Licet igitur muria calculosis noxia sit, non idcirco salis communis usum noxium esse concludendum est.” *Vid. Geoff. i. 103—104.* — But certainly the salt *salserum murie* is more a *sal ammoniac* than a volatile alkali. And he says before, “ Sal marinus sales volatiles urinosos facile sibi consociat & in ammoniacum convertit;” which he does not say is hurtful in the stone. Besides, no sea-salt is found in the calculus; neither is sal ammoniac: and since fresh meat sooner turns alkaline and volatile than salt meat, it must be the meat that is hurtful, and not the muria, according to his reasoning.

Salt is blamed also for the sea-scurvies, at least salt meat; as also for the itch, scabies, and even the elephantiasis, *vid. Geoff. i. p. 105.* perhaps with as little reason. One would think that an antiseptic should rather cure than cause putrid diseases. — In a word, considering that salt is unalterable by the vis vitæ, that it passes plentifully by the urine, and opens the belly (with what else is observed above); and also that salted meat has been used, even to excess (without any bad consequence) by many, there is little reason to condemn its use in any of these diseases.

“ *Mulier Darentiensis* imprægnata delectabatur tam impense halecibus salitis, ut ante partum comederit mille ac quadringentas. Attamen sine ventriculi offensa, ullove sanitatis dispendio. Fuit tamen ipsa bis noxia, in se, ac in infantem. In se quod nequiverit refrenare immodicum hoc falsamentorum desiderium. In infantem vero, quod ipsius appetitum mancipaverit, adeo stricte huic servituti, ut cum necdum posset verbis, expetierit tamen ejulatu haleces quibus se tam effuse dederat mater, plus æquo sibi indulgens. . . . Lege apud nos cautum est, ne quis falsamenta hæc venum exponat, ante decimum a salitura diem. . . . Debite namque saliti, & opportune dati, adeo non nocent, ut etiam summe profunt supino stomacho, juvando coctionem, detergendo pituitam, movendo alvum, & restituendo homini amissum cibi desiderium. Ac proinde non vane nostrates, ut a sole nebulas, sic ab halecibus dissipare morbos. Imo nunquam magis



“sterilem esse medicorum messem, quam sub horum adventum.” Vid. *Tulp.*  
 “*Obs.* b. ii. c. 24.

N. B. Mr. *Simon Kelly*, Minister at *Glenholm*, aged about 77, has long lived on salt-herrings and salted meat, and cannot eat fresh meat, without turning squeamish and uneasy; yet he is a very healthy strong man, neither troubled with scurvy nor stone.—However, salt, being acrid and diuretic, may increase if not exasperate nephritic paroxysms; though it no ways contributes to the generation of the calculus, but to its expulsion rather, like all stimulating diuretics.

*Sal gem* is reckoned the heaviest and most acrid of the kind; next to that is the salt from salt-springs; then salt made in the sun: the common salt being the lightest, and, in my opinion, the pleasantest. But here all are not agreed. *Sed parum refert.* “*Sal ille melius sapit qui ex aqua marina in salis lacubus solis ardore concrevit: qui vero ignis calore exsiccat, plus habet amaritudinis.*” *Geoff.* i. p. 101. Is the bay-salt fully freed from the bitterness? “*Ergo hercule vita humanior sine sale nequit degere.*” *Plin.* l. 31. c. 6. p. 759.

### S E C T. III.

The dose need not be determined. *Salis gem.* zij. sufficiunt pro clystere. Preparations: 1. *Spiritus acidus & dulcis.* 2. *Sal mirabilis Glauberi.* 3. *Sal catharticus amarus:* and *aq. regia* cannot be prepared without the help of salt.

1. *Spiritus salis offic.* is a strong acid, distilled from salt, mixed with powdered bole, brick-dust or the like, to prevent its melting. Vid. *Lewis's Pb.* p. 275. who accounts for the use of bole, &c. in a very different manner (*an recte dubito*), viz. from the vitriolic acid in the bole. But if so, much more spirit would be got *Glauber's* way, than with bole, which is not a fact. Vid. *Boerb. infra.* “This spirit distilled *Glauber's* way is not quite pure, but contains some of the acid of vitriol; to free it of which, it must be re-distilled off sea-salt, whereby the vitriolic acid uniting itself to the alkaline base of this salt, intirely quits the spirit.” Vid. *Macq. Ch. pr.* i. p. 106—113. which is the common way; or mixed with ol. vitrioli, which is *Glauber's* way, and by far the easiest. The spirits in both are the same. Vid. *Lewis Pharm.* p. 275.

“*Salis* ʒxij. by decrepitation are reduced to ʒxʒ. Two pound of salt only dried by a gentle heat, or at the sun, may yield spiritus acidi ʒbiʒ. and if by rectification, ʒbʒ. of a weak spirit be drawn off, there will remain, of a strong spirit, ʒbi.” Vid. *Lem. Chym.* p. 424—431.

“*Amittit sal in decrepitatione fere quartam partem sui ponderis. Hic sal immutatus cætera non amplius crepitat. Salis decrepitati ʒbiij. boli rubræ vulgaris ʒbx. mistæ. . . Liquor erit acidus, grate fragrans, viridi colore, ex quibuslibet ʒviiij. circiter ad ʒiiij. Miratus ideo, Beguinum aliosque scribere, se potuisse totam salis massam in spiritum salis optimum convertere. . . Non potui unquam dimidium educere, nisi humiditas forte, in sale vel bolo adhæserit immista.*” *B. Chem.* ii. 412. But of spiritus salis *Glauberi* he could not obtain so much. “*Ultra tertiam partem vix elicere potui spiritus puri ab aqua liberi. Nam certo modo pars salis marini hac arte vertitur in spiritum acidum, alia vero pars certo finita relinquitur fixa cum oleo vitrioli.*”

*Ib.* ii. 410.\* This acid spirit digested with a triple quantity of *sp. vini rectificati* produces the *spiritus falis dulcis offic.*—It may be doubted whether distillation here is of any use *Vide Lewis*, p. 279.

It quenches thirst, resists putrefaction, corrects alkaline and rancid acrimony, cuts and attenuates phlegmatic humors in the *primæ viæ*; and is commended in putrid and malignant fevers, scurvy, gravel, &c. sufficiently diluted ad *gratam acidatam*. Mineral acids are more dangerous than vegetable acids. “Habet proprietates acido communes & singulares. Est stomacho grata, appetitum ciens, mucosa attenuans, digestionem promovens, putrideni adversa: bilem, (ubi acris, nimia, vel putrida fit) corrigit: gangrænæ gingivarum, oris, linguæ extirpandæ pulchre prodest. Calculo generando obstat, generato resolvendo prodest, *Helmontio* testante. Stranguriam enilem lenit. Si meracissimus hic spiritus triplo alcoholis optimi mistus, dein distillando bis terve, accurate unitur; obtinetur sal. volatilis oleosus, acidus fragrantissimus balsamicus, laudatissimæ virtutis. Sed verbo dixerim omnes superat laudes liquidum hoc falis marini.” *Boerb. Chem.* ii. p. 410. Can the spirit of salt be of any use in hernias? *Vix videtur.*

2. *Sal mirabilis Glauberi, officin.* Sal catharticus Glauberi, *Pb. Lond. Nov.* p. 47. is the residuum a distillatione *sp. falis Glauberi*, dissolved in water, filtered and crystallised. It is cathartic. Dose ad  $\mathfrak{zj}$ . in aquæ  $\mathfrak{lbss}$ . It cools as it weakens nature, or the tone of the stomach and intestines, whence flatulent borborigmi, &c. and, much used, is apt to bring on paralytic disorders. I order it only in hæmorrhages, as at the nose, &c. “Sal mirabilis Glauberi solutus, & sanguinis sero permixtus, unico momento, coagulum album facit, fortius quidem quam ab ipso vitrioli oleo fit.” *Boerb. Chem. M. S.* “In pollinem redactus, triplo aceti, cerevisiæ, vini aquæ mixtus & repositus, ea congluciat.” *Boerb. Chem.* ii. p. 414.

Besides, it is now as much suspected of adulteration as the sal. jovis. What I had for the most genuine, as soon as it was dried fell down into a powder. It was in long and very transparent prismatic crystals, not at all resembling that of the shops, which keeps well enough.

The spirit. falis saturated with a fixed alkali and crystallised is the sal marinus regeneratus. *Boerb. Chem.* ii. p. 414. But in the *Lond. Disp.* it is called *sp. falis marini coagulatus*; only it is not crystallised, but evaporated to dryness. “This is usually called the regeneration of sea-salt, but falsely; for it is the acid spirit of sea-salt united with the earth of a fixed alkali, which is not the same with the earth of sea-salt.” *Pemb. Diæt.* p. 197. Yet, on the whole, sea-salt it is.

3. *Sal catharticum amarum offic.* Epsom salt is a salt extracted from the liquor called Bittern, which runs from common sea-salt after it is taken out of the pans, by repeated solutions in water, and crystallisations, to separate what sea-salt remains in it, and also a third acrid salt. See *Mr. Jo. Brown, chymist, his account of it in Philosoph. Transact.* No. 377. p. 348. and No. 378. p. 372. for 1723.

“Assumpto hoc sale (*Ebsamensi*) & præcipua evacuatione absoluta, mura ventris, per integrum plerumque diem reliquum, imo noctem sequentem, adhuc perdurare: manifesto documento, salem hunc intestina vivide stimulare, & adeo motum peristalticum excitare, ut tam cito, post salis irri-



“tantis, & impuritatum ejectionem, ad naturalem ordinem redire nequeat.  
 “Multis quidem diuturnum hoc motus peristaltici augmentum displicet, non  
 “contemnendum nihilominus utilitatem corpori præstat, quoniam, eo me-  
 “diante, flatus dies retenti expelluntur, & humorum circuitus per viscera  
 “liberior ac vegetior redditur.” *Cartheuser. M. M. i. p. 306.* But that these murmura ventris are not owing to the increased peristaltic motion, but from its being frequently and variously interrupted, from the too much relaxed and debilitated fibres, is evident, (a) because they come only after the stimulating salt is expelled; (b) no such borborigmi follow more stimulating cathartics, *e. g.* mercurials, &c. (c) they flow only from irregular contractions of the guts, and are most observable in weak intestines; and (d) because it is inconceivable, how the flatus should be diu retenti, when by the stimulus of the salt, the other contents are carried-off by and with it: so they must flow from the rarefaction of the air, which the almost paralytic fibres cannot resist, though in a very small quantity.

Epsom salt was first the natural salt of Epsom water; which was discovered about 1630, and salt made of it soon after by *Dr. Grew*. But a gallon of this water yielding only salis 3vij. in a dry season, and hardly 3vj. in a wet one, (*vide Allan's Hist. of Chalyb. and Purg. Waters, Lond. 1699, in 8vo.*), it was soon counterfeited, as appeared by the low price at which it was sold. As its price fell, so did its reputation, although the counterfeit salt, by various and repeated experiments, made in *France* as well as in *Britain*, is demonstrated to be every way as good as, yea to be the very same with, the genuine made of the *Epsom* waters.

*Mr. Brown* observes that *Dr. Grew* first attempted to make salt of Epsom waters: that to make salts of purging springs was tried in several countries some years after: that in 1700 or 1710 *Messrs. George and Francis Moul* made large quantities of salt from the springs on one side of *Shooter's-hill* in *Kent*; and sometimes boiled down 200 barrels in a week, which in dry seasons frequently yielded 224 lb. of salt: that some time after *Dr. Hoy* found out the more expeditious way from the bittern, which was first put in practice at *Portsmouth*, and afterwards at *Lemington*, which furnishes London with several tons of it in a year: and that about four or five years ago it began to be made at *Newcastle*. He fully describes the process, and proves it to be the same salt with that of Epsom-waters. Which was confirmed in *France*: where, after instituting a comparison and various experiments, it was found at *Paris*, that the salt made of Epsom-waters, the common Epsom salt of England, and the salt made of the bittern in France, are all one and the same salt. *Vide Mr. Boulduc's Memoire in the Mem. Acad. R. an. 1731. p. 624—652.* *Dr. N. Grew's* treatise of the nature and use of the bitter purging salt, written in *Latin, Lond. 1695.* in 12mo, was translated by *Joseph Bridges, M. D.* and printed at *London* in 1697, in 8vo.

It is cathartic like Glauber's salt; and is said to be also diuretic: though it cools and debilitates and is flatulent like it, yet if there be any real difference in their virtues, Epsom salt is probably the safest.

“Sal Epsom, seu catharticum Anglicum, est sal minerale, nitrosum, in  
 “parvis crystallis tenuibus, instar nivis, saporis salis-petræ & insuper amari;  
 “non est inflammabile, nec strepidum dedit in igne, dum funditur, quod fa-

“ cile fit. Refrigerat, leniter purgat & diuresim promovet. Dosis est ad ℥j.

“ vel ℥ij.” *Nucl. Belg.* p. 251.

“ Sal catharticum amarum, Epsom salt vulgo dictum, sal fossile non est, sed ex recremento salis, *Bittern* dicti, factum est.” (*Vires* are the same which *Schroder* gives to salt.) *Dale*, 15. For “ it is a mass of Glauber’s salt and sea salt, as it were confounded together, and mixed with some of the mother (*l’eau-mere*) of sea salt, which contains somewhat bituminous. These two mineral salts, which contain Epsom salt, can easily be separated from one another, by means of crystallisation alone.” Thus *Macquer Ch. Pr.* i. 73.

“ It is a cooling purgative. It is given from ʒvj. to ℥iʒ, and is good for the gravel, nephritic pains, agues, dropsy and other diseases, where gentle purgative deobstruents are wanted. An artificial mineral water may be made by dissolving ℥ʒ. of it in each pint of river-water.” *Lem. Diet.* p. 476. Verbo: I reckon it of use only where the animal process is to be lowered, or the vis vitæ to be diminished; and it would be of more use, and safer, if an ounce were dissolved, not in half a pint, but in a gallon or two of water, as it is at the natural spring, and used the same way as Epsom water is.

Of Epsom salt is prepared our magnesia alba. (*Vide Pharm. ed.* 1756. p. 183.) a famous cathartic absorbent. *Vide Phys. Ess.* ii. p. 157. “ *Hoffmanus* tamen eam quandoque noxiam esse suspicatus est. Neque tamen, ait, præterire possumus id incommodi, nos quandoque ab magnesiæ pulvere deprehendisse, quod flatulentias & morificationes in imo ventre relinquit, — si frequentius in usum trahatur, primaque regio progignendis corrosivis succis ut in hypochondriacis fieri solet, exposita sit.” *Vide Dr. Black, Dissertat. in Aug.* p. 20. which confirms the debilitating quality of the salt, whereof it is made. *Quomodo differt aq. marina a solutione salis in aqua?*

## LECTURE XXV.

### SAL AMMONIACUM.

#### SECT. I.

**S**AL ammoniacum *offic.* Ammoniacus sal factitius, *Matth.* p. 949. Ammon. sal, qui & armoniacus dicitur, *Worm.* p. 20. Sal ammoniacum, sal ammoniac, *Dale*, 415. Sal ammoniacus factitius, seu sal ammon. vulgaris, *Geoff.* i. p. 145. Sal ammoniac is a solid but not very hard salt, composed of slender filaments like crystals, brought from the *Levant* in round flat cakes, convex on one side, with an umbilicus in the middle, rough and dirty, a little concave, smooth and clean on the other, about ten inches broad, and two or three thick in the middle, much thinner at the edges, ashy-coloured without, whitish within and striated; of a salt penetrating pungent and somewhat urinous taste, and no smell. “ *Placentæ sunt unius aut alterius palmi latitudine; trium quatuorve digitorum crassitie; gustu falso, acri, pungente.*” *Vide Geoff.* i.



*Geoff.* i. p. 145. "They are from five to seven or eight inches in diameter, &c." *Hill's M. M.* 125. "It does not moisten much in the air," according to *Lemery*. But *Boerhaave* says, "In aere aperto, sponte, cito, totus defluit in myriam limpidissimam." (*Chem.* ii. 328.) It dissolves in moist, but not in dry air.

"Sal ammoniacus tanquam salis communis species semivolatilis, huc refferri potest. Traditur hunc salem nativum fossilem reperiri circa montes ignivomos, sicuti & locis sabulosis, siccissimis, fervidis, sub & circa zonam torridam; exhalare etiam in *Persia* e rupium rimis. Sal ammoniacus vero vulgaris venalis factitius est omnis, produciturque ex corporibus sal communem, vel hujus acidum, & salem volatilem alcalinum, actu vel potentia, continentibus, utpote quæ bina sunt principia, ex quibus omnis sal ammoniacus constat, & in quæ arte resolvi potest." *Cramer.* i. 253.

"On the very top of the mountain *Solfatara* is a very large excavated hole, where is the burning; besides which there are diverse other holes, which convey the smoke as out of a furnace. Out of these vents I gathered a kind of flores sulphuris, and sal ammoniac, which stuck to the mouths of these holes." From *Ray's Observat. Harris, Coll.* ii. 568.

"Sal ammoniacus nativus ex sulphuratis puteolatis rupibus depromitur. Sapore falso donatur, aqua facile solvitur, & in crystallos cubicas concrescit; nec a sale marino differe mihi videtur." *Geoff.* i. p. 144. Will sea salt sublime unless united to a volatile alkali? *Cartheuser* denies that there is any where a native true sal ammoniac, *ut infra*, "*Tanasser* is remarkable chiefly for its pagods, and its sal ammoniac pits, at a little distance from it." *Finch. Harris, Coll.* i. p. 88.

"The other native sal ammoniac (that of the antients being the first) is a kind of earth, *ou d'ecume salie*, which is wrought like saltpetre. It is found in some places of the East-Indies, especially in old caverns, and in the clefts of rocks, between *Labor*, *Thanasser* and *Frerhint*." *Savary, Diæ.* i. 147. *è Pomet*. "Mr. d'Herbelot, in his *Biblioth. Oriental.* says, there is a grotto in the little country of *Boton* in *Asia*, where the true sal ammoniac is found. In this cave there arises continually a vapour, resembling smoke in the day time, and flame by night; it is of this vapour condensed that the sal ammoniac is made, called in the language of the country, *Nuschader*." *Savary, Diæ.* iii. p. 39. And if the foot of our common pit coals contains more volatile salt than the foot of vegetables, it is not improbable that there may be a sal ammoniac sublimed by subterranean fires. But, whatever is in this,

Certain it is, that the sal ammoniac of the shops is factitious, and made in *Egypt*; that brought from the East-Indies, in the form of sugar-loaves, being a stranger here. Vide *Mem. Acad. R.* 1723. p. 304. And it is not long since we had any tolerable account of the process; now we have three or four, sent directly from *Egypt*, all by eye-witnesses; yet their accounts differ, and appear to me, to be still somewhat defective. The first is in a letter from *Pere Sicard*, a Jesuit missionary, dated at Caire or Grand Cairo, 1 Junii 1716, which, or an extract of it, was printed in the *Journal de Trevoux*, Nov. 1717. Vide *Savary Diætion.* i. p. 148. and *Mem. Acad. R.* 1720. p. 240, 270, where this letter is inserted, by Mr. *Geoffroy (le cadet)*. The second account of it is in a memoir by Mr. *Lemery, Consul at Caire*, dated June 24, 1719, from that place,  
inserted

inserted into the just-now mentioned paper by Mr. *Geoffroy*, viz. *Mem. Acad.* for 1720. In 1723 there was printed another letter of *P. Sicard*, which corrected some mistakes in his first, and agreed in every thing with that of Mr. *Lemery*, according to *M. du Hamel* in the *Mem. Acad.* 1735, where the consul is called *Mr. le Maire*. The third account of this process is that of *Mr. Granger*, who was sent by *Mr. le Comte Maurepas* to the Levant, to make discoveries in natural history, which we have in *M. du Hamel's* paper just now mentioned. *Hist. Acad.* 1735. p. 141. Since *P. Sicard* retracted his first account, and *Mr. Geoffroy* (i. 145.) gives I suppose the substance of his second letter, I shall pass by both, observing only that according to his first letter sal ammoniac was sublimed from foot, a little sea salt, and some beasts urine, which *Mr. Geoffroy* retains, though contrary to what *Mr. du Hamel* asserts of *M. Sicard's* second letter. But

*Mr. Lemery* or *Le Maire* says, that sal ammoniac is made in *Egypt*, purely of foot, and of nothing else; not of every foot, but that only which is scraped from chimneys, where clods made of beasts dung, kneaded with straw, are burnt.—That this foot is put into round glass bottles, like bombs  $1\frac{1}{2}$  foot diameter, with a neck two inches high, filling them to within four inches of the neck with the foot, which neck remains void and open; and closing them over with fat earth.—That about forty pound of foot are put into each bomb, which yield about six pound of the salt, more or less according to its goodness.—That the furnaces are made like our ovens, excepting that the arched roof has four long openings, upon every one of which four bottles are so fitted and fixed in the thickness of the vault, that their bottoms being exposed to the action of the flame, their necks only remain in the air; the interstices being well filled up and cemented: each great laboratory contains eight furnaces, and consequently 128 bottles.—That in every furnace the fire is kept up three days and three nights, with the dung of animals mixed with straw: the first day the phlegm exhales; the second the salts sublime, and stops the necks of the bottles; and the third day the coagulation is perfected. Then the master makes a little hole in the shoulder of the bottles, an inch below the neck, to see if the sublimation is completed, and again closes it exactly with fat earth; opening and closing it from time to time, as there is occasion. That the work being finished, and the fire withdrawn, he breaks the bottles, throws away the caput mortuum, and takes out the three or four fingers thick round, white, transparent mass sticking near the neck, which is the sal ammoniac. He adds, In two towns in *Delta* called *Damire* or *Damayer* and *Meballe* are twenty-five grand laboratories, and some small ones, where are made 1500 or 2000 quintals of this salt; there are two more laboratories in *Delta* and one at *Caire*, whence come about 20 or 30 quintals annually: and these are all the laboratories in *Egypt*. Thus *Lem. l. c.* Hence *Egypt* at most furnishes only 203000 lb. salis ammoniaci, of which there were imported at *Marseilles* com. ann. ante 1688, 30 or 40000 lb. (Vide *Savary Dict.* iii. p. 565.) i. e.  $\frac{1}{3}$  of the whole; where it is sold at 38 or 40 £. per quintal, (*Ibid.*) as it is commonly by our druggists at half a crown the pound.—Is not *M. Carfueil* mistaken?

According to *Mr. Granger* the chimnies where cow-dung (*beuze de vache*) is burnt give the best foot for this process; of which foot lbxxvi. yield commonly salis ammoniaci lb vi. Fifty or fifty-two hours suffice for the operation.

The



The vessels are ballons of very thin glass, with a neck an inch in diameter, and fifteen or sixteen lines long; the smallest containing 12 lb of foot, and the biggest 50 lb. being only  $\frac{3}{4}$  full. They first give the furnace a fire of straw for an hour, then increase it with cow-dung, made into square clods, continuing it thus for fifteen hours, and at last raise it considerably higher for fifteen hours more, after which it is suffered gradually to diminish. After the first six or seven hours, a thick foetid smoke rises, and continues for fifteen hours; in four hours more the salt sublimes in white flowers. From time to time they thrust an iron rod into the neck of the ballons (or foot balls) to keep a hole in the saline arch, to give free passage to the (*matieres bleuâtres*) bluish stuff, which continues to rise till the operation is ended. He also brought some of the foot; which is very black, and tastes of sal ammoniac. Thus *M. du Hamel. l. c.*

But how can such foot afford sea salt or its acid? Will any foot yield such a quantity of any salt? Mr. *Lemery* could get no more than salis volat. 3ß. and sp. volat. 3xij. from fuliginis 3lxiv. together with olei 3viiiß. and carbonis 3xlii, whence he had salis alcali fixi 3ij. Vide *Lem. Chym. p. 720*. Is not then some part of the process defective? Perhaps the foot is digested or decocted with wine and sea salt, evaporated to dryness, and powdered before it is put into the bottles; which these French gentlemen were not made acquainted with, or which was purposely concealed from them. But *M. du Hamel* shews that sea salt added to the foot, whence the sal ammoniac is sublimed, does not contribute to its formation, nor increase its quantity. Vide *Macq. Ch. Pr. ii. p. 435. An recte?* “Sal ammoniacum, ut in Ægypto præparatur, oculatus testis, *Hasselquist* descripsit (in *Actis Suecicis*, vol. xii. pro an. 1751.) materies est fuligo, a combustis stercorebus quadrupedum domesticorum, quæ plantis vescuntur, hominum quoque. Est vero Ægyptus sale plena & plantis salis, unde sine dubio acidum salis in ammoniaco. Stercoribus vero illis siccatis ligni defectum divites æque ac pauperes supplent, fuliginem iis qui sal præparant vendunt; neque enim agricolæ fimo indigent, cum agri argilla Nili sæcundentur. Camelorum stercore nulla hic est prærogativa, neque urinæ illorum ratio habetur; mallent tamen, qui sal coquant, humanis excrementis, deinde ovinis & carpinis uti, si sola haberi possent. Hanc materiam in vasis vitreis loricatis indunt, & post evaporationem spiritus acidi orificium obturant, in suprema autem sal collectum obtinent. Additamentum huic relationi adjecit *T. Scheffer*, observans præcipue, salis communis in ammoniaco magnas esse partes; hinc meliora esse excrementa animalium, quæ sale commune utuntur. Præter ea sal ammoniacum, ad puteolos a natura sublimatum, a *Cl. Swab* ibi collectum, possidere se narrat. Alia addit *Ulricus Rudenschöld*, inter quæ est, ex libris 26 fuliginis obtineri salis ammoniaci libras 6.” Ita *Commentar. Lips. vol. iii. p. 540. N. B.* The illustrious *Johannes Fredericus Henkelius* found a volatile alcali in many mineral waters, okers, lime-stone, chalk, earths, &c. “Et dari sal ammoniacale purum putum minerale luculenter probat, deque eo constituendo, sal commune, cum terra aliqua calcarea, sufficiens deprehendit, modo per retortam distillantur.” “*Id.* Ait quod *Puzzuolo* mons, aliæque regiones ejusmodi, abunde testantur.” Vide *Art. Phys. Med. tom. v. p. 325—332*.

A Com-

## A Comparison of the three Accounts before mentioned.

*Pere Sicard's.*

Bottles 18 inches diameter, neck 6 inches, close stopped.	Oven contains 20 or 30 bottles.	Ingredients, foot, sea-salt, and urine.	Fire continued 3 days and 3 nights.
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*Mr. Lemery's.*

Bottles 18 inches diameter, neck 2, open; salt stops them 2d day.	Oven contains 16 bottles.	Ingredients, foot only; of which lb 40. gives sal lb 6.	Fire continued 3 days and 3 nights.
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*Mr. Granger's.*

Bottles . . . neck $1\frac{1}{3}$ or $1\frac{1}{4}$ , i. e. 15 or 16 lines high.	Oven or furnace, as <i>emery's</i> .	Ingred. animal foot; lb 26. of which gives salis lb 6.	Fire continued 50 or 52 hours only.
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N.B. Soot lb xl. yield about salis lb vj. according to *M. Le Maire*; but according to *Mr. Granger*, six pounds of the salt is got from twenty-six pounds of the foot.

*Mr. Scot* has sublimed from our pit-coal-foot and common salt a true sal ammoniac, of which I have a sample. He also gave me a small quantity of true sal. ammoniac, which was taken out of a coal-pit in *Fife*, which has been burning ever since King *James* the IVth's time, if not longer.

"Arenarius vel ammoniacus sal, æstuantis *Lybiæ* sitientissimis locis genitus, Cyrenæicus veterum, circa ammonis templum copiosus; ex notis bonitatis *Plinio* indicatis, nostro hodierno simillimus apparet. Talis et circa ignivomos montes eructatur variis terræ locis. Vesevi sane optimus censeatur, vel hodie." *B. Chem.* i. 44. "Ad fossilia ergo hic referendus erit: licet Ægypto delatus hoc ævo animalis censeatur. Nonne ex fuligine originem solam ubique ducit?" *Ibid.* p. 45.

"Inter salis genera efficacissimum fossile . . . candidum et pellucidum, densum, et æquabili compage: peculiariter vero natione ammoniacum, quod quidem et findi facile potest, et rectas habet fissuras." *Dioscorid.* l. 5. c. 126. p. 376. "Invenit et (salem) juxta Pelusium, *Ptolomæus* rex, cum castra faceret, quo exemplo postea inter Ægyptum, et Arabiam, etiam squalentibus locis, coeptus est inveniri, detractis harenis: qualiter et per Africæ sitientia, usque ad Hammonis oraculum. Is quidem crescens cum luna noctibus. Nam Cyrenæici tractus nobilitantur Hammoniaco, et ipso quia subharenis invenitur appellato. Similis est colore alumini, quod schiston vocant, longis glebis, neque pellucidis, ingratus sapore, sed medicinæ utilis. Probatur quam maxime perspicuus, rectis scissuris." *Plin.* l. 31. c. 7. p. 758. "*Serapio* scribit salem ammoniacum fieri ex lapidibus durissimis & translucidis quod de gemmeo dici potest." *Geoff.* i. 143. — "Sal ammoniacus. Ille est melior, qui est ut borax, clarus, crystallinus. Calidus est et siccus in fine tertii. Est subtilitativus, liquefactivus. Confert albugini oculi. Constringit uvam quæ casum patitur, et confert squinantia." *Avicen.* l. 2. tract. 2. c. 626. p. 164. All which seem to agree better to sal gem than sal. ammoniac *offic.* When it was invented I cannot find. Was it by the chymists? This seems probable. — *Schroder* has about thirty barbarous names for it.



## S E C T. II.

It is a stimulating, attenuating, diaphoretic, and diuretic salt, said to be antiseptic: and is recommended internally in agues, cachexies, green-sickness, female obstructions, &c. and externally for inflammations, tumors, ulcers, gangrenes, palsy of the tongue, &c. In fomentis, cataplasmatibus gargarismis, &c.

“Interne vim habet diaphoreticam, præcipue in febribus, maxime in febre quartana; resistit putredini, &c. *Dosis* ad ʒß. Externe adhibetur in græna, carne putrida absumenda, in angina curanda (in gargarismis) quoniam nemo barbitonfores aquam suam cæruleam inde conficiunt in æneo vase ad albuginem oculorum tollendam. *Præparationes* crystallisatio, calcinatio et fixatio, sublimatio, distillatio et liquatio.” *Schrod.* p. 483—485.

“Si in aqua solvitur, colatur, inspissatur ad cuticulam, dat crystallos niveas, subtilissimas instar lanuginis. Hæ siccatae, et ab omni humido sedulo servatae, dein aquæ permittæ, eam plus refrigerant in ipso momento dissolutionis, quam ullo alio modo cognito fieri potest. Omnia animalia a putredine pulchre preservat, et ad intima usque myria ejusdem se penetrat: aperiens, attenuans, dissolvens, resolvens, stimulans, errhinum, sternutatorium, diaphoreticum, sudorificum, diureticum, antisepticum summum est.” *B. Chem.* ii. p. 329.

1. It is more pungent to the taste than common salt; also lighter, and more nearly allied to animal salts, *e.g.* urine; so is more diaphoretic, but less cathartic and antiseptic, though in nowise putrescent.

2. It consists of a volatile alkali, and the acid of sea-salt, intimately united: as of these may easily be compounded a salt every way of the same nature (though more of the consistence of the flores salis ammon. than of the salt); and into these it can be resolved.

Mr. *Lemery*, in his *Chym.* p. 474, says, that sal ammoniac. ʒviiij. contain at least ʒiv. ʒiv; and in p. 478. that they must contain sal. volat. ʒv. ʒv; that is upwards of ʒij. more than  $\frac{2}{3}$  of sal ammoniac. ʒviiij. are volatile salt. “*Analyti chymica ex sale ammoniaco, salis volatilis urinosi trientes duo eliciuntur.*” *Geoff.* i. 146. from Mr. *Tournefort* (*Mem. Acad.* 1700) unnamed; who says sal ammoniac. ʒxv. give sal volat. ʒx. and sp. volatil. ʒiiij. yet Mr. *Geoffroy*, jun. got much more. “By my method, says he, I got of dry volatile salt ʒxiiij. ʒiiij. sp. volat. ʒj. ʒvß. besides ʒiß. imbibed by the papers, from salis ammon. ʒxvi.” *Mem. Acad. R.* 1723. So that, according to him, salis ammoniac.  $\frac{7}{8}$  at least are volatile salt, and no more than  $\frac{1}{8}$  acid spirit, though no volatile spirit had been obtained. Nevertheless,

3. Sal ammoniac is neither alkali nor acid. Vide *B. Chem.* ii. 330.

“Sal ammon. cum oleo vitrioli vehementem effervescentiam suscitatur, cum insigni frigore. Solutio ejus salis heliotropii solutionem statim non mutat, sed post aliquot horas colore ex fusco rubro tingitur; lac non coagulat, nec sublim. corrosiv. solutioni ullam mutationem affert; cum ol. tartari, vel aq. calcis, odorem penetrantem exhalat.” *Geoff.* i. 146. Ol. vitrioli drives out the acid as it does from sea-salt and nitre: whatever can absorb its acid sets  
the

the alkali free. But no digestion can do it without such absorbents, which it can hardly meet with in our bodies, where the salts are nearer its own nature. Can it therefore be said, “*Hujus salis vis precipua pendet ab urinoso sale, qui acidum quantitate longe superat?*” *Geoff. i. 147.* Certainly not; since there is enough to saturate one another, how much soever they differ in quantity. And hence sal ammoniac is safe, even in putrid diseases, where alkalines are hurtful.

4. It dilutes the serum sanguinis, and hinders the coagulation of the globular parts, without changing its colour.” *Vid. B. Chem. M. S. p. 219.*

5. Externally applied it discusses, dissolves, cleanses, stops gangrenes, stimulates in the nose, mouth, &c. and internally, increases motion, perspiration, sweat, urine, &c. But that it is either more successful or more safe than the bark in quartans, as a febrifuge, I cannot assert.

According to Mr. *Grew*, in his experiments on the solutions of salts in water, read before the *Royal Society*, Jan. 18, 1677, p. 217. *Aquæ ℥ij.* dissolve salis ammoniaci *ʒv. ℥ij.* which agrees with my experiment pretty nearly, in which they dissolved *ʒv. ℥ij. gr. ix.* but some crystals soon formed in it, which were very beautiful, white, and of a snowy appearance, resembling sometimes feather, sometimes fern leaves, though they don't always retain that figure. How cold may be increased by a mixture salis ammoniac. sublimat. corrosiv. *āā lb. i. & aceti distillat. lb. iij.* *Vid. Lem. Chym. p. 460. . . .* “*Sal ammoniacus, purissimus, siccissimus, in pulverem redactus, ad unciam solvendam indigebat aquæ stillatiæ pluvie ℥ij. ʒij.*” *B. Chem. i. p. 576.* That is, *aquæ hujus ℥ij.* do not dissolve fully salis amm. *ʒv.* but a sal siccissimus was here used.

### S E C T. III.

It is seldom given to *ʒj.* though there is no danger in *ʒij.* Flores, spiritus, and sal volatilis are prepared from it. It is used also in the ens veneris, flores martis, and the spiritus salinus aromaticus. The sal. febrifugium *Sylvii* is now obsolete.

The dose is *℥℞. Schrodero; ʒ℞. Albino & Geoff. ℥j. Hermann; (℥i℞. for) ʒi℞. Quincy.* Because its surface is commonly sullied with soot, and has often bits of glass sticking in it, some purify it by solution and crystallization, which does fully as well as sublimation.

1. Flores are the salt purified by sublimation. “*Salis ammoniaci et salis marin. āā ℥viij.* yield *florum ʒvj.* and *residui ʒx.*” *Lemer. Chym. 461.* Here is a considerable loss: and what better are these than the crystals? Neither is the purification of it, in the *Ph. Lond. nova*, of any service; but probably it is rather the worse for it. *Vide Boerb. Chem. ii. 331.*

2. *Sal volatilis salis ammoniaci offic.* is the volatile alkali separated from the acid absorbed, and raised by fire in the form of a dry salt. If there be moisture enough to dissolve the volatile alkali, it rises in a liquid form, and is then the spiritus volatilis salis ammoniaci offic. The volatile salt rising first dry, by timely changing the recipient, both salt and spirit may be obtained by one and the same process; as in *Ph. Edin. p. 159.* Only, I fear, thus very little salt would



would be got, the moisture soon rising sufficient to dissolve it. Besides, there must be here too much water; it requiring more than double the quantity of both salts to dissolve them. There are two processes in the *ed.* 1722. But why are they conjoined in that of 1735? and why are there in *Pharm. Lond. novissima*, one with creta, another sale fixo? p. 50.

Mr. *Lemery* dissolves salis ammoniaci ℥viij. or rather moistens them, in aquæ ℥ix. and mixes with it cinerum clavellat. (*cendre de bois neuf tamisée*) ℥xxiv. and distills with a gradually increased fire. Thus rises first a small quantity of volatile concrete salt, which is soon dissolved, and carried off by the liquor, which distills guttatim. When no more comes over, he takes away the recipient with the spirit; stops the (neb or) nose of the capital, increasing the fire; and then arises the volatile salt. Thus there will be spiritus volat. ℥xiij℥. salis volatilis ℥ix. and residui ℥xxvj. ℥ij. Hence he infers salis ammon. ℥viij. thus yield salis volatilis ℥v. ℥v. Vide *Chym.* p. 477.

“Mr. *Du Hamel* frequently found his volatile salt, when a very intense fire “was made use of in the sublimation, amount to more, sometimes one half “more, than the weight of the crude sal ammoniac employed; though it is “certain, that not  $\frac{3}{4}$  of this concrete are pure volatile salt.” *N. Dispens.* p. 304. Vide *Infra*, *The Liquid Shell*.

N. B. 1. Salis ammon. & salis tartari āā ℥viij. with aquæ ℥v. yielded ℥vij℥. spiritus, florum salis ammoniac ℥x℥. and residuum ℥ix. ℥ij. Hence too little fixed salt was taken. The *Cod. Medicam.* p. 221. orders sal amm. ℔j. salis tart. ℔ij. spiritus vini ℥iv. “When the fire begins to heat the materials, a quantity of volatile salt arises, in a fine crystalline form; but the “succeeding humidity dissolves it into a spirit.” *Lem. Chym.* p. 474.—2. The volatile salt is sublimed from salis ammoniaci ℔j. and cretæ purissimæ ℔ij. without any moisture; and the volatile spirit distilled from salis alcalini fixi alicujus ℔i℥. salis ammoniac. ℔j. and aquæ ℔iv. (sp. ℔ij. are drawn.) Vide *Pemberton's Disp.* p. 203. Is not this spirit too weak? *Phar. Lond.* studies much frugality.—3. Mr. *Geoffroy*, junior, powders salis ammoniaci ℔j. and salis tartari ℔ij. and mixes them as dry as possible, adding only alcohol vini ℥ij℥. and after two hours cold digestion sublimes it. Thus, according to his calculation, sal. ammon. ℔j. yielded more than salis volatilis ℥xiv. Vide *Mem. Acad.* 1723. How much is got the London way of proceeding?—4. Sal ammon. ℥viij. and calcis vivæ ℥xxiv. well mixed, kept in a moist place six or seven days, and then sublimed, will yield spiritus ℥v. ℥vj. and residui ℥xxx. (so that ℥ij. ℥vj. of moisture were imbibed from the air) whence may be got, by decocting in water, filtrating, and evaporation, lapidis septicæ ℥viij℥. Vide *Lem. Chym.* p. 473. and *B. Chem.* ii. p. 333. who says it is, “Liquor volatissimus omnium cognitorum, acerrimus omnium,” and not to be used. Vide *Macq. Chym. prat.* ii. 444. *Ec. ad finem*. “The preparation of this “spirit with lime is omitted, that it may not be ever imprudently taken instead of this here described; for that is much too acrid for internal use.” *Pemb. Disp.* p. 204. Yet honest *Lemery* says, “It is an excellent remedy in all “the diseases which proceed from oppilation and corruption of the humours; “as for malignant fevers, for the epilepsy, palsy, plague, small-pox. It “drives away the humours by perspiration or by urine. The dose is a gut. vj. “to xx. in a glass of baum or carduus water.” *Chem.* p. 471. It is not alkaline,

caline, notante *Boerhaavio*, but surely igneous and caustic: yet, sufficiently diluted, it may be taken, and will operate like aq. calcis. *Vix!*

The strongest spirit of sal. ammon. and pure alcohol vini mixed produce instantly that coagulum which is called *Offa Helmontiana*, though, long before him, *Raymundus Lyllius* was the inventor of the experiment. Vide *B. Chem.* ii. p. 372. and *Lem. Chym.* 476. who observes, that “sp. salis ammon. with calx viva, does not at all coagulate the spirit of wine, because of the particles of fire it contains.” “Spiritus urinosus subtilissimus præparari potest, si calcis per se extinctæ partes tres, cum salis ammon. parte una simul misceantur, et levi calore distillantur. Hic spiritus cum spiritu vini rectificato concrevit in coagulum album, quod *offa Helmontii* dicitur; quod a spiritu, cum sale tartari distillato non producitur.” *Geoff.* i. 148. “Spir. urinæ, distilled with quick lime, will not coagulate sp. of wine.” Vide *Boyle, Utes. N. Phil.* pt. ii. *Eff.* 5. c. 7.

The residuum of the spiritus volatilis salis ammoniaci, distilled with a fixed salt, being dissolved in water, filtered and crystallized, affords what is called *sal febrifugus Sylvii*, commonly called, by *Quincy*, sal ammoniacum diureticum. *Lemery* evaporates to dryness only, *Chym.* p. 474. “Obtinetur sal, sapore, crystallis cubicis, effectu solvendi, salern marinum ferre referens. Qui dein crucibulo inditus, lateris imposito tectus, crepitans calcinetur aliquamdiu, solvatur, coaguletur, habebitur sal purus admodum. Qui sumptus drachmæ pondere, tempore ἀποψέξιας intermittentium, bihorio ante initium exacerbationis futuræ, calefacto simul corpore, sæpe febrim tollit. Unde sal febrifugus Sylvianus appellatur.” *B. Chem.* ii. 337.

“Quæ in fundo remanet massa salina, aqua soluta, et in crystallos exsiccata salis febrifugi Sylvii nomine insignitur, et ex sale tartari ac marino constat. Ad ʒij. exhibitus, incunte paroxysmo, febres intermittentes nunquam sedare valet. Ex hoc sale cum triplo boli permisto, spiritus acidus distillationis ope elicitur, ejusdem cum salis marini spiritu naturæ ac indolis.” *Geoff.* i. 148. Does this salt differ from the sp. salis coagulatus ut supra?

“I find ʒij. too strong a dose, for the salt is very acrid; at present we give a gr. viij. ad xxx.” *Lemery*, l. c. “This operates powerfully by urine; is given in the gravel, and is said by some to dissolve the stone in the bladder. The dose is from gr. x. to ʒj.” *Quincy*, 278.

The volatile salt is antacid, acrid, caustic. Hence it attenuates cold phlegmatic viscid humours; promotes perspiration; stimulates briskly the nervous fibres, and corrects the irregular motions of the animal spirits, or disorderly contractions of the nerves. It is much recommended in hypochondriac and hysteric disorders, convulsions, epileptic fits, lethargies, palsies, and other nervous diseases, modo calor nimis, putredo, inflammatio absint. Dosis ad gr. vij. well diluted, or mixed with milder substances in a bole. Some smell at it for head-aches. “In alcalicis putridis, dissolutis humoribus, corporibusque jam nimis agitatis, pessimum est venenum.” *B. Chem.* ii. p. 368—370. “Sp. sal. ammoniaci, &c. mingled with warm blood, renders it more florid, keeps it fluid, and preserves it from putrefaction for a long time.” *Boyle*, vol. ii. (*folio edition*) p. 554. *exp. made in 1664.* — The spirit is given to ʒj. but I think ʒʒ. too much at a time.



3. *Spiritus salinus aromaticus offic.* Vulgò sal volatile oleosum, is spirit of wine impregnated with the volatile salt of sal ammoniac and aromatic oils. Vide *Pharm. Edin.* p. 44. And hence it is a *sapo volatilis aromaticus*; which may be therefore of many kinds, and prepared many different ways.

“*Sal volatilis aromaticus, simplex angelicæ. . . .* Odore, sapore, meabilitate, mobilitate, virtute saponacea, vi antacida, antausteraque remedium conficit, quod in manu prudentis medici quam præstantissimum singulari efficacia sua. Valet enim, in omni aquoso, mucoso, frigido, acido, austero, bilis vera efficacia carente morbo; inque omni fere ubi inflammatione et putredine absente, inertia languet, potissimum, quando simul mobilitas inæqualiter agitatorum nervorum, & spirituum, facit insultus hypochondriacos, hystericosque adeo molestos, inde et flatuum inde ortorum ingens remedium. Instaurans ergo, cardiacum hodie vocant, stomachicum, calefaciens, sudoriferum, diureticum, diaphoreticum, antiparalyticum, antispasmodicum, antiepilepticum egregium, ubi a recensitis modo causis ducit originem. Laus sit *Bes. Valentino et Franc. Sylvio* imprimis, qui in medicinam nobile hoc remedium genus induxere. Sylviani tamen intempestivo abusu sæpe infamiam illi constant.” Vide *B. Chem.* ii. p. 372—374. It may be given to ʒij. at a dose.

The spiritus volatilis aromaticus, *Pb. Lond.* is such a composition, but much more simple than ours. There is also, in that *New Disp.* a sp. sal. ammon. dulcis; and spirit. volatilis fætidus. Vide *Pemb. Disp.* p. 204.

4. *Spiritus mindereri offic.* is the sal volatilis ammoniaci saturated with sp. aceti. “*R Salis volat. ammon. q. v. paulatim instilla, subinde agitando spiritus aceti q. s. i. e. donec cessat effervescentia.*” *Pb. Edin.* Ought not the mixture then to be heated, and more sp. aceti then dropt in, to be certain the saturation is compleat? “*Sal alcalinus volatilis optimus, aut spiritus alcalinus sincerus, et spiritus aceti optimus, dant spiritum falsum.*” *B. Chem.* ii. p. 338. It is as it were a vegetable sal ammoniac, or sal ammoniacus subtilissimus liquidus.

It is a most penetrating antiseptic, attenuating, deobstruent, diaphoretic, sudorific and diuretic medicine inwardly; as well as a most powerful dissolvent and discutient externally. “*Maxime omnium oculariorum morborum, ubi in cornea opaci quid subnascitur, aut in humore aqueo, si fomenti forma rite applicatur.*” *B. Chem.* l. c. It may be given ad ʒij. & ultra. Will it crystallize?

## LECTURE XXVI.

### SAL PETRÆ.

#### SECT. I.

**S**AL Petræ. Nitrum *offic.* Nitrum, *Worm. Mus.* 22. *Aldrovand. Mus. Met.* 321. *Charl. Fossil.* 8. Sal nitrum, *offic.* Dale 27. Nitrum recentiorum seu sal. petræ, *Geoff.* i. 114. Salt Petre, or Nitre. This is a white, pure, semipellucid

pellucid salt, in long hexangular prismatic crystals, of a salt, pungent and cold taste, without smell.

You have the form of the crystals, into which nitre naturally coagulates, as described by Dr. *M. Lister* in *Dale*. ( $\alpha$ ) It does not run or melt in the common air, though moist, as common salt and sal ammoniac do: yet it easily dissolves in water; of which  $\text{zij}$ . dissolved, in the experiment I made, nitri  $\text{ziv}$ . in the common and temperate air. But according to Mr. *Grew*, aquæ  $\text{zij}$ . dissolve nitri  $\text{zv}$ . gr. l. and according to *Boerhaave*, aq. stillatitiæ  $\text{zij}$ . dissolve only nitri  $\text{zij}$ . Nitrum solvitur in aquæ  $6\frac{1}{2}$ . *B. Chem.* i. p. 44. & 576. He says, "Nitri puri sicci, in pollinem contriti,  $\text{zix}$ . in aq. pluviae stillatitiæ  $\text{zvi}$ . solvabantur. Unde tres nitri in novem decem partibus aquæ." Here is evidently a typographical error, and probably more than one.

Aquæ pluviae  $\text{zij}$ . sine calore solvunt

Salis marini communis	—	—	—	—	3v.	3j.
Salis ammoniaci	—	—	—	—	3v.	3j.
Salis nitri	—	—	—	—	3iv.	
Aluminis	—	—	—	—	3j.	gr. xxxvj.
Boracis	—	—	—	—		gr. xxxij.

( $\beta$ ) Nitre melts soon in pure fire, where no phlogiston, or nothing sulphureous or inflammable, has access to it; otherwise it flashes with noise, is in part consumed, and in part fixed, or changed into a fixed alkali.

"In igne puro, qualis est ignis solaris concentratus, vel in vase a pabulo ignis (illapsu) defenso, liquefit mediocri igne; summo igne, partim per vasa transcendit, partim in fumum, qui nitrum existit, resolvitur; addito vero inflammabile quocunque ingenti cum strepitu comburitur, atque cum hoc, ex parte in alkali mutatur." *Cramer*, i. p. 9. And ( $\gamma$ ) by distillation it yields, or rather is turned into, a most acrid and corrosive spirit, very different in its nature and effects from all other acid spirits known. "The most probable opinion concerning the nitrous acid is, that it is nothing but the vitriolic acid, combined with a certain quantity of phlogiston by means of putrefaction, &c." *Macq. Chym.* i. c. 4. § 2. But that celebrated chymist, *Joan. Christ. Kuhnst*, seems, by a curious experiment, to prove, that the phlogiston can be separated from the nitrous acid; and that when it is separated, it does not leave a vitriolic acid, but the marine acid. Vide *Art. Phys. Med.* tom. vi. (1742) *Observ.* 138. entitled, *Nitri Acidum ex acido Salis et Phlogisto concretum*, p. 464—8. Nitre, therefore, is many ways distinguishable from every other salt.

Nitre is always found, or rather is generated, in the surface of the earth; never in mines. For seldom can there be found any matrix impregnated with nitre above a foot deep in the earth. The matrices nitri are chiefly limy, loamy, rich, and fat earths; especially such as abound with rubbish, lime, and putrified animal and vegetable substances, and have amongst them the ashes of vegetables not intirely deprived of their fixt alkali salt. In such matrices, by the help of the air and moderate moisture, the nitre is compleatly formed, or its generation perfected.

"Matrices nitri sunt terræ, præcipue calcarizæ, lutosæ, argillacæ; humusque, quæ ex vegetabilibus et animalibus, per aeris vicissitudines destructis, omnino originem ducit. His si accedunt vegetabilium combustorum,

" præsertim



“ præsertim eorum, ex quibus per ignem multum salis alcalini fixi generatur,  
 “ cineres, non omni suo sale per elixationem prorsus orbat; dein omnes quo-  
 “ que animalium & vegetabilium partes putrescentes vel jam putrefactæ,  
 “ pingues simul et oleosæ, generatio nitri in dictis matricibus perficitur: in  
 “ terra enim, phlogisto penitus omni destituta, nunquam nascitur nitrum;  
 “ modo caveatur ne efflorescentiæ calcariæ stalaëticæ, ad pontes et muros re-  
 “ periundæ, incaute pro nitro habeantur. Nondum detectus est locus ullus,  
 “ qui non ad nitri generationem aptus sit, modo concurrant memorata. Re-  
 “ quiritur tamen insuper, ut aere pervius is sit, et quoad humiditatem & sic-  
 “ citatem temperatus. Calorem interim et frigus, nisi ambo-admodum ex-  
 “ cedant, parum hic juvare vel nocere certum est. Solis saltem radii calen-  
 “ tiores arcendi. Liqueat etiam aerem probabilissime vel instrumentalem vel  
 “ materialem, vel forte utramque generationis nitri causam esse, aut hanc  
 “ saltem in sinu suo hæere. Aeris enim aditu præcluso nitri generatio im-  
 “ peditur. Quin constat pariter, qua de causa, in hisce regionibus, ventus ex  
 “ oriente & septentrione plagisque inter has duas mediis spirans nitrariis adeo  
 “ proficuus sit, et præcipue quidem vernali et autumnali tempore; dum con-  
 “ tra occidentalis et meridionalis sterilis est.” *Cramer* i. p. 256.

“ Nitrum in terris mollioribus, imprægnatis vegetabilium et animalium  
 “ partibus pinguibus et salinis, ad putrefactionem subeundam aptis, nascitur.  
 “ Sed nitrum perfectum in talibus nunquam reperitur, nisi alcali fixum, aut  
 “ terra calcaria simul adsint. Hinc conducit cineres alcalinos terris in quibus  
 “ nitrum generare debet, addere, aut saltem dum elixatio terræ nitrosæ pera-  
 “ gitur, cineres alcalinos, calcemve commiscere. Hæc enim nitrum revera  
 “ ingredi, indubitatis constat experimentis. Copiosum alcali nascens ex nitro  
 “ per minimam quantitatem carbonum, nihil alcali fixi in se habentium,  
 “ quales sunt de semine sinapi et similibus, id testatur. Si enim tales carbonēs,  
 “ nitro liquefacto superingesti, cum eo detonant, igne in immensum aucto,  
 “ & post absolutam detonationem ad fluorem, aquæ instar, massa deducitur.  
 “ Obtinebis plus quam dimidium salis alcalini fixi, respectu nitri adhibiti;  
 “ nisi ob vasa minora, & imprudentem, carbonum copiosorum una vice in-  
 “ gestionem, multum ex vase exturbaveris. Vocatur hoc alcali nitrum fixum,  
 “ fuitque paulo difficilius ac aliud alcali fixum purum, ob terram quæ inest  
 “ calcariam subtilem: nec ullum tum nitri vestigium superstes est in eo, quod  
 “ per olei vitrioli ad saturationem usque instillationem detegitur: hoc namque  
 “ si nitrum superest, residuum ejus spiritum expellendo, nares odore spiritus  
 “ nitri ferit. Docet et hancce alcali in nitro fixi præsentiam, ejus ex spiritu  
 “ nitri et alcali regeneratio. Valido igne agitur nitrum in crucibulo solido,  
 “ aperto, denique fumi specie diffatur, pauxillo valde alcali superstiti, quod  
 “ tamen igne continuato, utpote non absolutum fixum, itidem dissipatur.  
 “ Præcipitatur præterea per alcali fixum superflua terra calcaria, quæ in forma  
 “ salina per spiritum nitri inducta in lixivio continetur. Hæc terra præprimis  
 “ apparet in ultimo superstiti lixivio primæ crySTALLISATIONIS copiosa, nisi antea  
 “ per abundans sub ipsa elixatione alcali jam præcipitata sit: vocatur *Magnesia*  
 “ *Alba.*” *Cram.* ii. 302. Hence we see, that animal, vegetable, and mineral  
 “ substances, earth, water, air, fire, must all contribute or concur to the pro-  
 “ duction of this wonderful salt. “ Inter sales fossiles nitrum, origine utique

“ sua, quam proxime accedit ad animalia et vegetabilia.—Ambigit enim in-  
 ter

“ter tria. De putrefactis animalibus, fale marino non utentibus, alcali & calce, natum quonam referes.” *Boerb. Chem.* ii. 381.—The essential salt of human excrements resembles nitre, and deflagrates very much like it. Vide *Macquer. Ch. Prat.* ii. p. 405. How nitre is extracted from its matrices, and refined, see in *Cram.* ii. 299. 304.

“Salt-petre is made at Paris of the rubbish of old demolished houses, well rotted: at Tourain of the turfe (soft sandy stone) of which the houses are built; in other provinces of the earth of sheep-cotes, pigeon-houses and cellars, and other low and moist places. Having put into large wooden tubs (of which there are commonly twenty-four in a workhouse, containing about 53 English gallons a-piece) about three bushels of ashes, in each tub, they fill them up with the nitrous earth, first well beaten with mallets. Then they take about 210 English gallons of water, which is poured on the first tub, and as it runs through that into the second to run through that also, and so on till it has passed through the whole number. This liquor, thus impregnated with the salts, and purified per subsidentiam, is boiled down to a proper consistence, and put into copper pans for the crystallisation of the salts: the liquor afterwards remaining is called *mere de sal-petre* or *eau mere*, (vide *Lem. Diēt.* p. 380.) and is reserved for fresh earth and ashes, which are renewed every day. This they call rough salt-petre; which is refined by dissolving it in water, boiling, skimming, clarifying with English glew, evaporating and crystallising as before. The liquor after it is decocted to a proper thickness, yields about  $\frac{1}{3}$  of salt-petre.—It is refined a second time the same way; then rocked, by melting it over the fire, and pouring it into copper pans, in which it cakes, and is then called salt-petre *en roche*, and is fit for making the best gun-powder. (France sometimes makes, in the generalité of Paris alone, 628,600,000 lb. of nitre in one year.) Vide *Savary, Diēt.* vol. iii. part 2. p. 538. also vol. ii. p. 1469.—*N. B.* Of this *mere de sal-petre* is made *magnesia alba*, as, “*R Aquæ matris nitri q. v. vapo-* ret ad siccitatem. Materiem superstitem calcina, & in pulverem redactam multoties ablue aqua tepida, usquedum penitus insipida evaserit. Tum sicca & serva.” *Cod. Medic. ed.* 1748. This is an absorbent.

Gun-powder is composed of nitre p. vi. sulphuris purifac̃ti & carbonis āā p. i. so that in lb viii, there are nitri lb vi, and sulphuris & carbonis āā lb i. The charcoal fittest for this purpose is made of a shrub called bourdaine; and next to that of chenevotte (bullen.) Vide *Savary, Diēt.* iii. part 2. 433.

*N. B.* I once thought it should be bardane; but that agrees not to what he says of bourdaine, vol. iii. part 1. p. 100. But, according to *Lemery*, gun-powder is made è nitri puriss. p. viii. sulphuris & carbonis salicis āā p. i. Vide *Chym.* p. 542.—“There are twenty-three powder-mills in France, which can furnish among them 5430,000,000 pounds of gun-powder yearly.” *Savary's Diēt.* iii.

*Bertholdus Schwartz* (or *Schuvertz*), a *Cordelier monk* of *Friburg* in *Prisgaw*, is generally allowed to have been the inventor of gun-powder, and is said to have taught the Venetians the use of cannon in 1380, which gained them the battle of *Fossa Clandia* (now *Chioggia*) against the Genoesē. But the honour of this invention is due to the famous *English friar*, *Roger Bacon*, who was born near *Ilchester* in *Somerseſshire* in 1214, and who died 11 *Junii*, an. 1292.



“ He, as we are told, could make a flying chariot, and had an art of putting statues into motion, and producing articulate sounds out of a brazen head : and this not by any magical power, but by one much superior, that of philosophy and nature, which can do such things, to use his own expressions, as the ignorant think miracles. There is something too in a chymical way, which he hit upon, as extraordinary, and that is the secret of gun-powder : he describes the materials of its composition, and the amazing effects of its noise and light.” *Freind’s Hist.* ii. 238.

It is not very probable that a native salt-petre is any where to be found, whatever some authors may affirm. “ Native salt-petre is found in many places of the kingdom of Pegu, and about Agra, in villages, at present uninhabited. It is found also in some places along the Volga.” *Savary, Dict.* ii. You may see, if you please, in *Mem. Acad. R.* 1717, p. 39 and 156 Mr. Lémery’s conjectures ; and in *Harris’s Collect.* ii. p. 127 Mandeflo’s lies. — Mr. Tournefort indeed says, that he learned of the caravaniers of Wan, a town in the frontiers of Persia, eight journies from Erzeron, that there were yearly extracted from a lye made of the earth of the great highways, where the caravans of camels commonly passed, more than 100 quintals of nitre. But this earth may be only a matrix of nitre ; perhaps ashes were added. However, since it is got as above, it is rather a factitious than a native salt-petre. Vide *Tournef. Voyage* ii. p. 157.

Nitrum is said to have its name from Nitria, a town in Egypt, whence (the Nitrian desert) where is a lake called Latron, on the surface whereof the Egyptian nitre, or natron, is said to be found, condensed by the heat of the sun. Vide Dr. *Leigh, Phil. Transact.* No. 160. “ The water of the Nile managed much the same way, as the sea water is, in the (salt marshes or) salt-pits of Broage in France, assisted by the heat of the sun, furnishes a third kind of natural salt-petre, known to the antients by the name of natrum or anatum. It is properly what they call *soude blanche*.” *Savary, Dict.* ii.

In *Hippocrates* νιτρον, νιτρον ἐρυθρον, νιτρον ἄφροσ & λιτρον, occur. I don’t know how often *Dioscorides* also has nitrum & nitri spuma, l. 5. c. 130 & 131. *Pliny* treats of it lib. 31. c. 10. and mentions it in several other places, calling it always nitrum. *Galen* has both nitrum and litrum, and distinguishes between aphrolitrum and aphronitrum. Vide *Simpl.* l. 9. & 11. But there is no reason to believe that our salt-petre is the nitrum or lithrum of the ancients ; and when, how, and by whom it was invented I cannot find. Mr. *Gecffroy* is at a great deal of pains, to prove that the nitre of the ancients was a different substance from ours. He quotes for it *Proverbs* xxv. 20. but the *Septuagint* has not nitrum there : and *Jeremiah* ii. 22. where the 70 has νιτρον. Vide vol. i. p. 112.

## O N N I T R E.

## S E C T. II.

Nitre, used internally, is resolvent, antiseptic, antiphlogistic, diuretic, purgative and debilitating; whence it is called antiphrodisiac, and is commended in anginas, pleurisies, peripneumonies, the gravel, and all inflammatory diseases: and externally used it is said to be of service, as a discutient and anodyne, in inflammations of the mouth, fauces, throat, &c.

“De nitri qualitatibus primis, haud parum controvertitur; sunt qui calidum, sunt qui frigidum existimant. Cæteras nitri vires quod attinet, vim habet putredini resistendi, sitim ac æstum compescendi, tartaream saburram incidendi, coagulatos sanguinis grumos resolvendi, dolores mitigandi. Hinc usus vulgatissimus in febribus ardentibus, putridis, præcipue in febre illa Hungarica dicta, in pleurisi, peripneumonia, in calculo renum & vesicæ, in obstructionibus hepatis ac meserei.—Externe in inflammatione faucium & angina, in topicis anodynis, ac refrigerantibus, in combustionibus; ubi præcipue solvitur in liquore appropriato & imponitur cum linteo. *N. B.* Ubi alvus nimis laxa fuerit vel ventriculus debilis, ejus usus non ita proficiuus erit. Dosis ʒj. vel ʒiſs. *Præp.* Purificatio, calcinatio, sublimatio, distillatio, extractio. Ego vix ʒiv. transcendendo, nimirum aliquantulum debilitat ventriculum, unde & alvi fluxus conciliare non nunquam solet, alias a ʒſ. ad ʒj. propinari sine noxa potest, præcipue cum saccharo, quo amaror mitigatur. Vide *Sennert.*” *Schroder*, p. 475—480.

“Nitrum in corpore humano facile solvitur, mire refrigerat, sanguinem attenuat, impetus venereos retundit, colorem sanguini coccineum conciliat, in corpore humano mutatur, nec ut marinus sal immutabile persistat, sed mutatur ibidem in sal hominis. Partes animalium humidæ solidæve nitro conditæ, ab omni putredine prohibentur, rubræ valde manent. Unde in omni morbo inflammatorio, una cum densitate phlogistica sanguinis, est sal attenuans optimus, nimia acrimonia nequaquam lædens, nimio pondere neutiquam noxius, sitim nimis haud excitans, alcalescentiam salis humani, putrefactionem olei ejusdem, certo & fortunato, impediens. Hinc vero nomine, hoc respectu, sal antiphlogisticus dicendus.” *Boerb. Chem.* ii. 383.

1. Although it is salt and pungent to the taste, yet it as sensibly cools the tongue, and rather quenches than causes thirst. “Sal est sulphureum, falso-amarum.” *Schroder*. “Sapore acri & amaricanti, cum cujusdam frigoris sensu.” *Geoff.* i. 114. “Saporis acris & amaricantis.” *Dale* 27. I cannot call it bitter, it is scarcely bitterish to my taste; and mixed with common salt in curing meat it gives it rather a sweeter than a bitter taste. It cools liquids into which it is put, but not so much as sal ammoniac.

2. It is not only easily dissolved in our stomachs, and enters the lacteals; but also vi vitæ is changed into an animal salt, (*notante Cl. Boerhaave supra*), and somewhat retards the alcalescency and putrefaction of our juices; but surely not so much as common salt which is immutable, especially since it corrodes animal substances. In the mouth of a glass, wherein I was dissolving some



nitre in water I put a cork covered with alumed leather; by frequently shaking the glass, the leather was as often wetted, and in two or three days was quite corroded. Hence it appears remarkably to cleanse the primæ viæ, if loaded with viscous humors (though there is great danger in the excess;) and not to be so antiseptic as the common salt.

3. It is neither an alkali nor an acid, but a neutral salt. Vide *Boerb. Chem. ii.*

“ Sal petræ, priusquam ignem expertus fuerit, nullum acidi indicium præbet. Heliotropii solutionem & syrupum violaceum nequaquam mutat, lac non coagulat; sanguinem tamen cogit, ejus serum spissius efficit, & in gelatinæ speciem convertit. Nitrum solutum, sublimati corrosivi solutionem, post horæ quadrantem, lacteam reddit: salium alcalinorum more, gallarum infusionem turbidam efficit, & colore ex albido vel cinereo tingit.” *Geoff. i. p. 116.* Yet by fire more than one half of it can be turned into a fixed alkali: by fire it can be almost all turned into an acid corrosive spirit, *ut infra.* And by saturating a fixed alkali with the sp. nitri a real salt-petre may be produced. Vide *Boerb. Chem. ii. p. 396.*

“ A pound of good salt-petre, grossly beaten, and made into a conical heap on a flat tile, if the upper part of it be kindled, with a little fragment of burning coal (which may be afterward thrown away), and then with an iron rod the kindled part be dextrously stirred, that the ignition may be presently communicated to as many parts of the salt as possible; and this nimble stirring of the mass continued to the end of the operation, will thus afford in few minutes 3x. or better of fixed nitre, very lixivial and of a greenish-blue colour.” *Boyle, Prod. of Chym. Principles.* (Vide *his Works*, vol. i. 382.) who there also asserts that nitre may be fixed by mixing it with about  $\frac{1}{4}$  part of tobacco-pipe-clay, and keeping it in fusion for some hours in a close crucible: the same may also be effected by the metals, as by  $\frac{1}{5}$  of fine silver, &c.

4. Nitri solutio in aqua, mixed with fresh-drawn blood, dilutes it, retards its coagulation, and rather brightens than spoils its colour. Vide *Boerb. Chym. ii. p. 378.* and certainly does not thicken or congeal, but thins and dilutes the serum, without any other change. *Expertum est.* Did Mr. *Geoffroy*, who asserts the contrary, boil them? Or did he only conjecture concerning it?

5. Outwardly applied it discusses and cleanses sore mouths, throats, burnings, &c. and inwardly taken is reckoned a magnum inflammationum remedium, and is of great use in all inflammatory diseases where a suppuration is not necessary and ought to be prevented. Yet it may be abused; and is too extravagantly commended. For,

6. It is observed impetus venereos retundere by *Boerhaave*; ventriculum debilitare by *Schroder*; and to bring on sometimes improper and symptomatic diarrhœas by many: I have known it occasion a palsy of the arms. A friend of mine, one Mr. *A. Archer*, for an inveterate headach, by the advice of a French surgeon, took sal. prunellæ ʒj, every day for some few days, and thought himself the better for it; but being seized with a palsy in both his arms, which he never had before, and suspecting the salt might be the cause of it, he laid it aside for a week or so. This loss of the use of his arms not continuing for many hours, and his headach growing worse, he returned to the use of the sal prunellæ; but being again attacked with the paralytic symptom, he

he left it off altogether, judging the remedy worse than the disease; and was never more troubled with such palsies. Hence it appears that nitre weakens or diminishes the tone of the nerves, debilitates all the functions, and lowers the vis vitæ: so that it is opposite to the indicatio vitalis, and only proper where nature wants to be bridled, more than stimulated: yet it is far more safe than any of the plumbata. Does nitre debilitate by thinning too much, or impoverishing the blood? or by lowering and retarding the animal process? However this be, ubi vires sunt firmandæ beware of salt-petre; penetrat enim, solvit, debilitat.

“ Nec timendum est, ne illius usus in acutis intempestivas diarrhœas inducat, ut recte monet *G. Ernestus Stabl, M. P. Halensis, in Dissert. de Nitri usu medico polychresto*. Ille enim in diarrhœa, febribus malignis, vel etiam ipsis variolis superveniente, nitrum feliciter exhibuit. Cum enim diarrhœæ, quibus tunc afficiuntur ægri, prorsus symptomaticæ sunt, scil. a nimia sanguinis colliquatione oriundæ; sal petræ massam sanguineam leviter cogendo (though it rather dissolves it) non solum diarrhœam, sed & alia symptomata, sæpe graviora, mitigat, & cum debita cæterorum remediorum administratione, prorsus extinguit. Si quæ tamen a nitri usu indicantur diarrhœæ, salutes sunt, ut observavit author; cum nempe oriuntur a viscerum inflammatione immutata, vel sedata. Quo fit ut pravi succi, quibus turbant glandulæ & vasa, remotis carceribus, per intestina prorumpant, & foras amendantur. Idem asserit urinæ suppressiones & ardores ab ejusdem usu efficacissime sedari & curari, dolores inflammatorios demulceri, & erysipelaceos affectus sanari. Puerperis lochiorum suppressionem patientibus & in graves æstus febriles prolabantibus, sæpe & adeo felici eventu administravit, ut sublato febrili æstu, fluxus lochiorum placidissime restitutus fuerit. Nitri virtutem demulcentem in arthritidis paroxysmis, in quibus dolores non solum articulos invadunt, sed etiam sæpe diaphragma aggrediuntur, non sine summo ægrorum periculo; nec non etiam in cardialgia hypochondriaca, seu in flatulento spasmodico affectu, quem uberiori sanguinis ad ventriculum affluxui, vel levi hujus visceris inflammationi tribuit, se pluries expertum fuisse narrat. Eodem quoque remedio hæmorrhagias, & præsertim hæmoptysim oppugnavit & expugnavit.” *Geoff. i. 117, 118.*—Who soon after, in my opinion, very judiciously adds, “ Licet de interno salis petræ usu nihil metuendum censet celeberrimus ille Medicus (*Stabl*), eum tamen in ulcerosis affectibus & in vera phtysi nihil juvaminis asserre, verum etiam aliquam majoris irritationem inferre videri pronunciat: quapropter his in affectibus ab eo abstinendum est.”

## ON N I T R E.

### SECT. III.

Nitre may be given to ʒj. The preparations of it are sal prunellæ, sal polychrestus, nitrum fixum, and spiritus varii.

Dosis ad ʒj. *Herman. Lemery. Albinus.* “ Interne a gr. ij. iijve ad ʒj. in substantia exhibetur, doses ter, quaterve de die iterando. Vel solvitur in  
“ soliti



“ soliti potus lbij. a ʒß. ad ʒj. Si majori dosi exhibeatur, ex. gr. ad ʒj. alvi fluxum concitare solet.” *Geoff. i. 117.*

1. *Sal prunellæ, lapis prunellæ & crystallus mineralis offic.* is nitre rendered less cooling, or more acrid by burning some flor. sulphur. on it: so that it is a useless preparation. Nitre of itself, or melted alone, and formed into cakes, is much better as an antiphlogistic.

*Schroder* takes sulphuris p. i. for nitri p. xvi. — *Lemery* sulph. ʒß. (p. i.) for nitri ʒxxxij. (p. lxiv.) whence salis prunellæ ʒxxvij. *Vide Chym. 438.* — *Cod. Med.* sulphur. p. i. nitri p. xxxij. — *Pb. Edin.* sulph. p. i. nitri p. xxiv. The *London New Pharmacopœia* omits it. It may be coloured with a tincture of papaver. rubri. “ Nomen acquisivit a Germanis, qui observaverunt, quod

“ epidemica castrensisque quædam febris species, angina nigrescente formidabilis, hinc Germanicè *die Branne* dicta, quam fortunatissime hujus pulveris usu curaretur; hinc nomen salis prunellæ dederunt.” *Boerb. Chem. ii. 390.*

2. *Sal polychrestus offic.* is salt-petre fixed, by deslagrating it with an equal

“ quantity of sulphur, or of its flowers; then dissolving it in water, filtering and evaporating to dryness. *Est tart. vitriol. acris.*

“ Nitri communis & sulphuris aā ʒxvi. yield sal polychresti circiter ʒv. “ Refined nitre only ʒij. ʒiv. If dissolved again and crystallised, its crystals “ somewhat resemble sea salt.” *Lem. Chym. p. 441.*

It is a stimulating, attenuating, diaphoretic, diuretic and cathartic salt; commended in obstructions of the viscera and chronic diseases. Given to ʒß. as a diaphoretic, to ʒj. as a diuretic, and ʒij. as a cathartic. I am no admirer of such acrid irritating salts. It is expelled the *Pb. Lond.*

“ It ought not to be used, unless it be very white, and very pure: for “ when any gross part of its sulphur remains, it is apt to cause vertigoes, stupors of the nerves, risings in the stomach, and pricking pains. The dose “ a ʒß. ad ʒvi. It is commonly used in infusions of fenna a ʒj. ad ʒiv.” *Lem. Chym. p. 441—444. Vide infra Nitrum vitriolatum.*

“ Pituitam attenuat frigidam, mucosam; attenuat pariter densam, inflammatoriam; aperit vias, corrigit putrescentem bilem, erigit nimis inertem; “ stimulat blande tutoque: inde in chronicis & in acutis quoque, prudenti “ adhibitione, sanat. Tertianas quidem exquisitas certo fere tollit, sine metu “ recidivæ, sine obstructione viscerum. Quartanas curat quam securissime, “ resolvendo sensim rebellem harum materiem: quare merito laudabile nomen “ meruit, obtinuit.” *Boerb. Chem. ii. p. 391. Chymicum hic agit.*

3. *Nitrum fixum offic.* is salt-petre fixed into an alkali salt by deslagrating it with charcoal, and purified by solution in water, filtration and evaporation to dryness. It differs not from the salt of tartar, or other fixed alkalines; and exposed to the moist air melts or runs per deliquium into a liquid, called liquor nitri fixi; which is the *Alchabest Glauberi.*

“ Nitri commun. ʒxvj. melted in a crucible, and deslagrated by throwing “ into it *per vices* carbonum ligni coarsely powdered ʒiiß. will afford nitri fixi “ ʒxij. But refined nitre ʒxvj. will require carbonum ʒvij. to fix it, and yet “ will yield only nitri fixi ʒij.” according to *Lem. (Chem. p. 455)*; which is scarcely credible. However it is certain that not near so much alkali can be obtained from the charcoal, as is thus obtained; and that the charcoal of vegetables containing no fixed alkali will make this change on the nitre, and

turn

turn more than one half of it to a fixed alkaline salt. Vide *Cramer* l. c. p. 237. *N. B.* I say change; for that it contains not so much alkali appears by the following spirit.

4. *Spiritus nitri offic.* is an acid corrosive liquor, drawn from salt-petre by distillation, or rather nitre thus turned into such a liquor. For nitre, as well as sal marinus, powdered and mixed with three times its weight of clay, bole, bricks or the like in powder, to prevent its melting, which would hinder the spirit from rising, may be distilled by a strong fire into this spirit. This may also be made with much less heat, and more ease and safety, by the help of ol. vitrioli, which mixed with the nitre so acts on it, that even in the common air, the spirit rises in the form of smoke if the ol. vitrioli be sufficiently dephlegmated; for if it has been but for some time exposed to the air, from whence it greedily drinks its moisture, it will not have that effect. Why then does the *Pb. Edin.* order the nitre to be dissolved in water? *Nescio.* Vide p. 163. ed. 1744. Or is it bettered in the edition 1756, by ordering the ol. vitrioli æquali copia aquæ calidæ dilutum? By no means. Vide *New Dispens.* p. 286. and *Macquer.* It is certainly an error.

This is the sp. nitri *Glauberi*, every way as good and strong as that with bole. "Spiritus nitri cum bolo erit similis omnino spiritui nitri *Glauberiano* sed nunquam tam fortis." *Boerh. Chem.* i. p. 403.

"I have often boiled in water the earth remaining after the distillation of nitre with dried clay (*argille sechée*), and, having evaporated the filtered liquor, did not usually find any salt, but sometimes met with a little vitriol, such as is found in several clayey earths. I have observed also that 3xxxij. of salt-petre de bouffage, yield of phlegm and spirit together 3xxx." *Lem. Chym.* p. 445. He has not sp. *Glauberi*.—How much is got that way I cannot find. *Boerhaave* says, "Quando hæc distillatio (cum bolo) processit felicissime, habui spiritus respectu nitri adhibiti  $\frac{2}{16}$  five  $\frac{1}{2}$  &  $\frac{1}{16}$ ," that is from nitri puri 3xvj, spiritus 3ix; that the residuum retained the taste of nitre; and that lixiviated filtered, (saporis erat nitrosi) and inspissated ad parvam copiam, "instar lactis crassam, saporem habebat, non valde acrem, tamen lixiviosum, quasi alcaliscentem utcunque. Hunc deinde explorans, cum affusis acidis, inveni alcalinum quodammodo, & mutatum aliquantum de pristina natura nitri, non tamen verum alcali." See *Chem.* ii. p. 402. 406: where he explains the effect of bole on the nitre; mentions the opinion of the chemists, that nitre consists of an alkali and an acid, so that according to *Hemberg* the alkali in it is to the acid as 480 to 483, (which is contrary to experiment); and concludes, "Quare certo constat, hoc acidum ex mutato per ignem nitro, non vero ex separatione acidæ & alcali præexistentium in composito, natum fuisse."

In the process for preparing the spiritus nitri *Glauberi*, *Boerhaave* uses nitri purissimi siccissimi in pollinem impalpabilem contriti 3xviij, ol. vitrioli purissimi fortissimi ab omni aqua liberati 3vj; and says it is impossible by altering this proportion to obtain more spirit, none of the oil rising.—*Pb. Edin.* orders nitri p. ii. ol. vitrioli p. i.—The *New Lond. Pb.* observes *Boerhaave's* proportions. (Vide *Chem.* ii. p. 392. 394); on which the *New Dispensatory*, p. 286, remarks thus: "A pound of the vitriolic acid is scarcely sufficient to expel all the acid from nitri lbij. Some direct equal quantities of each." But surely



surely boli lb ix. will not yield near lbj. olei vitrioli: so that his remark, or his account of the effect of boles in distilling acid spirits, must be ill founded; as I think both are. "Mortalium primus *Joan. Rudolphus Glauberus* reperit hanc "artem, arcanum prorsus, raro hinc pretio vendidit, tandemque revelavit: "cui ergo decoræ reddantur gratiæ tanto pro munere." *B. ibid.* The spirit of nitre is the strongest dissolvent of metals, stones, calculi, &c. yet known.

*Spiritus nitri dulcis offic.* is the acid spirit of nitre digested, and distilled with a triple quantity of rectified spirit of wine. *Lemery (Chym. 446.)* takes sp. nitri and vini aa p. æq. and says that after the ebullition is over, and the mixture clear at bottom, it will be diminished one half. He does not distil it; neither does Mr. *Geoffroy*; nor does it appear to be necessary. The *Codex Medicam.* orders sp. nitri p. i. & sp. vini p. ii.—*Boerb.* and *Ph. Lond.* order sp. nitri p. i. and sp. vini p. iv.—What part is it that evaporates? Is it the spiritus vini? Vide *Lewis Ph. 298.*

"Dum ita uniuntur alcohol & spiritus nitri, odor statim enascitur fragrantissimus, quasi suaveolens spiraret abrotanum. Effervescentia simul summa observatur, inter acidissimum volatile & oleum purissimum subtilissimum—que, absque ullo concursu alcalini vel minimi, & quidem effervescentia fere ignivoma." Vide *Boerb. Chem. ii. p. 395.* and compare No. 3. there with the *Narrative in Pemb. Disp. p. 54.*

In virtues and dose this spirit agrees with sp. salis dulcis. It is a lithontriptic with some. *Quincy* says it may be given from 20 drops to 120. *Ph. p. 272.* I think gut. xx. or xxx. enough. *Lemery* gives it only ad gut. viii. And grata aciditas should never be exceeded.

Quo digestio & distillatio unitorum liquorum sæpius repetitur, eo combinatio accuratior, quæ tum dat salem acidum oleosum perfectissimum. Is vires possidet vere antisepticas, balsamicas, detergentes, dissolventes, putredini bilis resistentes. Prudenti usu, bene dilutus parcissime adhibitus, dentibus nitorem candidum quam citissime conciliat, imprudenti adhibitione destruit. Appetitum reddit ventriculo, si pituita mucosa, bilis corrupta, aut & propria debilitas, hunc deleverint. Inter auxilia flatibus adversa locum tenet principem. Lithiasios prophylacticon laudatur, & calculo jam nato saxifragum audit. Hoc sane fuit carum quondam illud lithontripticon *Cl. Sylvii*, adeo famosum olim, adeo pretiosum. Sudores movet, pellit urinas, sitim lenit, emendat graveolentiam, scorbuto sanando singulari virtute prodest. Sumitur commodissime ventriculo vacuo ter quater interdium ad gut. xxx. ex vino, hydromelite, cerevisia." *Boerb. Chem. ii. p. 396.*

*Aqua fortis offic.* is the spirit distilled from nitre, mixed with vitriol, calcined vitriol, vitriol and bole, or calcined alum: and it is stronger or weaker, as there is less or more water or phlegm in any of these substances conjoined with the nitre. Thus if nitri p. i. and colcotharis vitrioli p. ii. be employed, the spirit is as strong as sp. nitri cum bolo; if the vitriol be only calcined to whiteness, it is weaker: if nitri & vitrioli non calcinati p. æ. there is still more phlegm in it; and consequently it is still weaker.

"Nitri, vitrioli Germanici ad albidinem calcinati, et argillæ siccatae aa 3xxxij. yield aquæ fortis 3xxxiv. & residui 3lxiij." Vide *Lem. Chym. p. 450—453.* Now since, according to him, thirty-two ounces of nitre, with a triple quantity of clay, give of liquor thirty ounces (vide *Sup. p. 246*), there must

must be here phlegmatis  $\frac{3}{4}$ iv. from the calcined vitriol. He says the common aqua fortis is distilled from nitri & vitriol p. æq. which must be very weak, one half of the vitriol being phlegm. *Schroder's* is from nitri p. i. & vitrioli exsiccati part ii. p. 479. — Our aq. fortis simplex takes vitrioli ad albedinem calcinati p. ii. & nitri p. i. and the duplex vitrioli viridis ad albedinem calcinati, nitri, & argillæ siccatae  $\frac{2}{3}$ a p. æq. Which is the strongest? The *New Lond. Ph.* has only one aq. fortis; and it is distilled from nitri, vitrioli viridis non calcinati  $\frac{2}{3}$ a  $\frac{1}{3}$ ij. & vitrioli ejusdem calcinati  $\frac{1}{3}$ ij.

“ The refiners prepare their strong aq. fortis solely from equal parts of nitre and Dantzic vitriol uncalcined. But with our vitriol, the method here directed is to be preferred.” *Pem. Disp.* p. 193. It is used only as a menstruum.

The residuum a distillatione aq. fortis dissolved in water, filtered and evaporated to dryness, is called panacea duplicata, arcanum duplicatum, sal de duobus, & *sal ducis Hofsatæ* by the chymists. “ Satis similis est sali nato in confectione spiritus nitri Glauberiani.” *B. Chem.* ii. 405. No. 5. which resembles somewhat tartar. vitriolat. *Ib.* p. 393. “ The arcanum duplicatum, or sal de duobus, is aperitive. The dose is gr. viii. ad ʒj: if more be given it excites vomiting.” *Lem. Chym.* 453.

*Nitrum vitriolatum*, *Ph. Lond.* p. 47. *Geoff.* i. p. 122. (which, from its propensity to vegetation, I used to call sal vegetans) is the residuum a distillatione spiritus nitri Glauberi itself (vide *Geoff.* & *B. Chem.* ii. p. 393), or this salt purified by dissolving it in hot water, filtering and crystallizing: so that it is composed of the ol. vitrioli and the remaining fixed part of nitre. Since nitre can be made acid by uniting it to a small portion of its own spirit (vide *B. Chem.* ii. p. 401.) in the nitrum nitratum, and here there seems to be more ol. vitrioli than is necessary to saturate the fixed alkali, will not this salt be more acid than tartarus vitriolatus? Mr. *Geoffroy* thinks it differs not from the arcanum duplicatum, tartarus vitriolatus, and sal polychrestus. “ Hi omnes sales, rite præparati, indiscriminatim usurpari possunt. Cum purgantibus feliciter adhibentur, ad eorum vim augendam, et ad crassos, lentos ac tenaces humores incidendos; urinam enim movent & alvum subducunt. A ʒss. ad ʒj. in purgantibus potionibus et apozeimatibus aterantibus præscribuntur, vel etiam ex iis aquæ minerales artificiales parari possunt. In chronicis morbis a viscerum obstructione utiliter usurpantur. Observandum est, nitrum vitriolatum et sal polychrestum, nisi accurate calcinata fuerint, nauseas et vomitum excitare. Quapropter attendendum est, ne vitriolici salis, aut odoris sulphurei quidpiam retineant; alioquin nova opus est calcinatione.” *Geoff.* i. 122.

Though there may be some difference in the form of their crystals, &c. yet I reckon these salts all akin to one another in medicinal virtues, and also to the sal mirabilis Glauberi; only they are more acrid than this, and approach nearer to an escharotic, and so cannot be given in so large a dose. Do they dilute or thicken serum sanguinis?

“ There being in the former draught three salts, sal polychrestus, nitrum vitriolatum, & tartarus vitriolatus, which are very similar in qualities, it was thought expedient to omit the first, that form not being much prescribed among us.” *Narr. Com.* p. 55.



5. *Aqua regia offic. Aqua fortis comp. Pb. Lond.* is spirit of nitre impregnated with sea-salt or its acid. "Spiritus nitri  $\text{℥xvj}$ . poured on salis ammon. pulv.  $\text{℥iv}$ . and digested to a compleat solution, afford aq. regia  $\text{℥xvij}$ ." *Lem. (Chym. p. 466.) Geoff. and Pb. Edin.* keep the same proportions.  $\text{℞ Aq. fortis } \text{℥xvj}$ . salis marini  $\text{℥j}$ . Distilla ad siccitatem. *Pb. Lond. p. 46. Vide Narrat. p. 55.* "Aquæ forti, aut spiritui nitri si miscetur sexta salis marini, gemmæ, fontium, aut salis ammoniaci, aut spiritus salis marini fit aq. regia, quæ aurum solvit, non argentum. Si distillando abstrahitur aq. fortis a sale marini, aut spiritus salis a nitro, fit eadem aqua regia. Si nitri p. ii. vitrioli p. iii. salis marini p. v. distillent simul, ut in distillatione aquæ fortis fit, habetur optima aq. regia. Hæc igitur fit misto nitro et sale communi." *B. Chem. ii. p. 474.* It is used in preparing sal jovis, only with us; as is the London aq. fortis compofita for the mercurius corrosivus ruber. [a]

[a] There has been lately published a book, entitled *Experimental Essays*, containing many interesting facts on the subject of nitre, by Mr. Alexander, Surgeon at Edinburgh.

#### EXPERIMENTS WITH NITRE.

The greatest part of the neutral salts seem, from what observations have hitherto been made upon them, to be possessed of very considerable sudorific and diuretic qualities. Among the most valuable of this class is nitre, not only as a sudorific and diuretic, but also as a powerful cooler and a strong antiseptic. Several other virtues have been attributed to it, of which we are not so certain; however, as these already mentioned are enough to render it very valuable, I thought a few experiments with it, in order to determine to what quantity it may be given, and what its effects are on the human body, would not be unacceptable to the public.

Having made a number of experiments on the frigorific power of nitre, when dissolved in fluids, I constantly observed, that on putting a thermometer into any sort of them, and afterwards throwing in powder of this salt, the mercury fell almost immediately to the lowest degree that it would go in that solution; and, in a minute or two after, began gradually to arise again, till it came to the same height at which it had been before the nitre was put in. As nitre effervesces but very little when mixed with any liquid, I suspected that the cold produced by it was not owing to that cause, but to some quality in the nitre itself, which the external air, perhaps, seized on and carried away, when the solution was exposed to it.

#### EXPERIMENT I.

In order to satisfy myself concerning this matter, I took two four-ounce phials, and having filled them nearly full of water from the same bottle, I put into each of them two drachms of powdered nitre. One of them I

corked and sealed with wax, and leaving the other without a cork, set them both together in a cool place. After they had stood two hours, I poured the contents of that which had been exposed to the air into a tea cup, and put the thermometer into it. In about a minute, the mercury sunk five degrees, but would go no lower. I then poured the solution that had been corked and sealed, into another cup, and having raised the mercury the five degrees it had fallen in its last immersion, put the thermometer into it also; but the mercury in this only sunk three degrees.

The next day I repeated the same experiment. In the solution which had been corked, the mercury fell only two degrees; whereas in that which had not been corked, it fell almost five.

#### EXPERIMENT II.

Two four-ounce phials were filled with *spiritus mindaveri*, and set together for one night; when in one of them, which had been corked, the fall of the mercury was hardly perceptible; in the other, it fell two degrees.

#### EXPERIMENT III.

I took two small phials, which contained each two ounces, and filled them with compound horse-radish water; one of them I corked immediately, and left the other exposed to the air; after they had stood three hours in the same place where the water was usually kept, I put the thermometer into a small tea-cup, and poured the liquor that had been exposed to the air upon the ball of it: the mercury (when the liquor was all poured out) had fallen two degrees, but would go no lower. I then changed the thermometer into another cup, and poured on it the liquor from which the external air had been excluded: as soon as it touched the ball of the thermometer, the mercury began to arise; and when the whole of it was poured out, it had

had risen nearly the two degrees which it had sunk by the effusion of the former liquor, but would rise no higher.

#### EXPERIMENT IV.

This sudden rise of the mercury, which had not happened in any of the former experiments, surprised me so much, that to satisfy myself further concerning it, I again returned each quantity of liquor into the same glass from which it had been taken; corked the one that had been left uncorked before, and *vice versa*. In this manner, and in the same place where they had been in the last experiment, they stood all night. Early next morning, I put the thermometer into a cup, and poured on it the liquor that had formerly been corked, and was now exposed to the air: by this the mercury fell two degrees. I then changed the thermometer into another cup, and poured on it the liquor that had formerly been exposed to the air, and was now corked: the mercury, while this was pouring on it, arose almost the two degrees it had fallen by the other liquor.

From this it appears, that the relative heat of two equal quantities of the same liquor may be altered, and any one of them made hotter or colder than the other, by excluding it from, or exposing it to, the air.

#### EXPERIMENT V.

I filled the same phials with camphorated spirit of wine, taken from a bottle that had always stood in a north room, and exposed them for two hours to the sun in a south window; I then put the thermometer into a cup, and poured the liquor out of the uncorked glass upon it; the mercury arose four degrees, but would go no higher. I next changed the thermometer into another cup, and poured the contents of the corked phial upon it, by which the mercury arose two degrees more.

#### EXPERIMENT VI.

I filled the same glasses again with the horse-radish water, and left them both in the same place exposed to the air: when they had stood two hours, I examined them, and found them both exactly of the same degree of heat. I then corked one of them, and left them there three hours longer; and on examining them again, found that the liquor in the corked phial was one degree and a half warmer than that in the uncorked one.

#### EXPERIMENT VII.

Two glasses, full of pure water, the one corked, and the other uncorked, stood together three hours, in the same place where the quantity of water from which they were taken had

flood before. On examining them, the water in the corked phial was almost one degree warmer than that in the other; and on comparing the heat of the water in the uncorked phial, with that of the water from which it was taken, they were exactly equal; but on comparing the other, it had acquired almost one degree of heat greater than the original quantity, during the time it had been shut up and separated from it; for which acquisition, no other cause could be assigned than its exclusion from the external air.

These experiments, together with a variety of others, whose effects were nearly similar, instead of confirming my conjecture, that the air carried away the coldness from dissolved nitre, plainly demonstrated the contrary; and not only discovered, but confirmed a fact which I had never so much as thought of, viz. that *a given quantity of any fluid, excluded from all communication with the external air, soon becomes warmer than any other given quantity of the same fluid, left exposed to it.*

From this I was led to conjecture, that not only fluids, but perhaps all, or the greatest part of other bodies, may acquire heat, when excluded from the circulating air; and even that the air itself may become warmer when closely shut up, than when at liberty to communicate with the external atmosphere. This conjecture seems to be confirmed by the following experiments.

#### EXPERIMENT VIII.

Two thermometers, graduated exactly to each other, were hung in a room; one upon the inside of a closet door, and the other on the outside of it: the mercury was always one degree higher in the thermometer on the inside, than in that on the outside; but when the closet door was left for some time open, they exactly agreed.

#### EXPERIMENT IX.

One of these thermometers was put into a small partition of a writing-desk, which was then locked, and the other laid on the outside of it. The mercury in that which was shut up, stood always one degree and a half higher than in the other.

#### EXPERIMENT X.

A thermometer was put into an empty phial, and the mouth of the phial well luted; so that there could be no communication between the inclosed and external air: in this situation it stood a night, and on taking away the luting in the morning, almost as soon as the external air rushed in, the mercury sunk one degree.

From these experiments I was induced to think, that there is a stronger refrigerating prin-



ciple in the circulating, than in the stagnant air ; it was therefore natural to infer, that this principle (if it really existed) would be increased in proportion to the compression of the air, and velocity of its motion ; but by blowing forcibly on the ball of a thermometer with a pair of hand-bellows, the mercury always, in a minute or two, rose more than one degree ; and in some trials it rose seven or eight, and as constantly fell three, four, or more, when put into a window just lifted up far enough to admit a very strong draught of air.

The reason of these so very different phenomena, in circumstances so similar, I shall not attempt to explain, but resume the experiments with nitre, which was the original intention of this essay.

#### EXPERIMENT XI.

I mentioned before, that in making some experiments with nitre, I had constantly observed, that it possessed a very great power of producing artificial cold, when dissolved in any fluid ; which led me to endeavour to discover, whether the internal use of it would alter the constitutional heat of my body. For this purpose, I applied a thermometer to the pit of my stomach, and the highest degree to which the mercury would rise, was 98, my pulse beating 72 strokes in a minute. I then took a drachm of nitre dissolved in an ounce of water ; two minutes after this, my pulsations were reduced from 72 to 64 ; four minutes after, they were as low as 62 ; and from that time they began gradually to increase, till at the end of ten minutes they were at 70, and soon after at 72, the exact number at which they were before I took the draught. About 20 minutes after I had taken the nitre, on looking at the thermometer, the mercury had arisen from 98 to  $99\frac{1}{2}$  ; and in 20 minutes more, it was fallen again to 98, and my pulse still continued to beat 72 : this was exactly, in every respect, the state in which I was before I took it.

As the rising and falling of the mercury in all the subsequent trials was extremely irregular, I shall leave out of my narrative of the following experiments, the observations I made on it, and lay it down as a postulatam, that *whatever power nitre may have of cooling the body, it does not exert it in any perceptible manner on its external parts.*

\* Soon after this experiment, on Sunday the eighth of September, 1765, I was called to the wife of a grocer in this city, who, intending to take a dose of *sal Glaub.* sent her maid into her shop to bring a handful of it, directing her to the drawer where it lay. The maid mistook the drawer, and, instead of the *sal Glaub.* brought a handful of nitre, dissolved it in warm water, and gave it to her mistress, who, in order to avoid as much as possible the disagreeable taste of the *sal Glaub.* (which she supposed it to be) swallowed the whole draught with that precipitation which is natural

#### EXPERIMENT XII.

About an hour after I had taken the first draught, I took a second. My pulse beat 70 before I took it, but in one minute after, no more than 60, though it soon became quicker ; so as, at the end of ten minutes, to beat 68, and, in a few minutes more, 70. As soon as I had taken it, I felt a chilliness over all my body, but more particularly at my stomach, which continued for about 20 minutes to give me a good deal of uneasiness. It then began to decrease, and in little more than half an hour was intirely gone off.

#### EXPERIMENT XIII.

The next day I repeated the same experiment. Before I took the dose my pulse beat 64 ; the second minute after, the strokes were reduced to 60 ; the fifth minute after, they were at 63 ; and soon came to 64, as before I took it.

#### EXPERIMENT XIV.

As the nitre had been so strong and disagreeable to my stomach when so little diluted, the day following I took a drachm of it dissolved in two ounces of water. Before I took it my pulse beat 73 ; the second minute after, it fell to 66 ; the fourth minute after, it arose to 69 ; and from that time became still more frequent ; till, at the end of nine minutes, it had recovered its usual strength, and was at 73.

#### EXPERIMENT XV.

Twenty minutes after this dose, I took a drachm and a half of nitre, dissolved in three ounces of water. After two minutes my pulse was weak, fluttering, and unequal, and beat about 70 in a minute. Soon after I felt a painful sensation at the upper orifice of my stomach ; and, on arising from my chair, it was with some difficulty that I walked through the room. I then returned to the chair, and felt my pulse again. It was now become so quick, fluttering, and irregular, and my head was so giddy, that I could not exactly number the strokes it beat, though, as near as I could judge, they were between 96 and 100. In about an hour, every one of these disagreeable symptoms began to abate, and continued slowly decreasing all that day. The next morning, when I got out of bed, they were intirely gone off\*.

EXPERI-

## EXPERIMENT XVI.

I had taken every one of the preceding doses as soon as the nitre was dissolved; and having by them fully satisfied myself that its effects, when so taken, were very evident and considerable, I now proceeded to try whether they would be the same when it was taken after it

had remained some time in a fluid state. For this purpose I dissolved one drachm and a half of it in three ounces of water, which I left twelve hours exposed to the air, and then swallowed. Immediately before I took it, my pulse beat 64; the second minute after, it beat the same; the fourth minute after, it beat 59; and from that time began to increase as in the

in these cases; but was surprized to find a strength and pungency in it which she had never discovered before in taking salts; insomuch that, to use her own phrase, it had like to have choked her. Immediately after she had taken it, a very severe pain arose in her stomach; upon which she suspected that she had got something else instead of the salts she intended to take. She therefore desired the maid to shew her the drawer from whence she had taken them, which was the drawer where the nitre then lay.

While they were making this discovery, she sickened, and threw up a few mouthfuls, which tasted very strongly of the salt. From the very moment she had taken it, she began to swell, and continued to increase in so surprising a manner, that at the end of this vomiting, though not above three or four minutes had elapsed since she had taken the dose, the lace of her stays was ready to burst asunder; and it was with much difficulty they could be got off soon enough to allow room for the increasing bulk of her body. Her neck too was affected in the same manner, and so very much enlarged, that her necklace had almost strangled her while the assistants were taking it off; nay, even her petticoats and garters were obliged to be loosed, so universally did the swelling extend itself. All this happened in the space of six or seven minutes; nor was it more than ten from her taking the dose when I saw her. As soon as I had discovered what was the occasion of her complaint, I immediately ordered her a vomit of ipecacuanha; and, the moment after she had swallowed it, gave her large draughts of oil and warm water. By the assistance of these, she soon vomited pretty freely, and in proportion as the vomiting increased, the pain and swelling decreased; so that, after five or six plentiful evacuations, they were both greatly abated. Having now recovered a little from the panic into which she had been thrown, she was extremely solicitous to have the remains of the nitre carried off, and therefore proposed to drink some of the *sal Glauberi*, in order to purge away any part of it that might be got into her intestines. I complied with her request, in hopes that the salts would make her vomit more freely than she had hitherto done: which happened accordingly; for she had no sooner drank a large draught of them, than she threw them all up again, together with some of the oil and water which remained in her stomach. Immediately after this, she had a profuse loose stool, accompanied with a little griping; after which she was put to bed, where, in about half an hour, she had an abortion, having been two months pregnant. After the fœtus was come away, she began to evacuate blood *per vaginam* & *per anum* along with every loose stool, of which she had a great many that day. On Monday, this evacuation, together with the flooding, were something lessened; but on Tuesday they returned with greater violence than ever, and what she then passed by stool seemed to be nothing but the villous coat of the intestines mixed with blood. On this account I ordered her some mucilaginous medicines, with opium; by the help of which these symptoms were much abated on Wednesday, and on Thursday night were almost intirely gone off. Besides the swelling and pain in her stomach, which had seized her immediately after taking the nitre, she had been attacked also with violent pains over her whole body, but more particularly in the small of her back: these, however, did not continue very long, being almost intirely gone on the Monday, though she had some slight returns of them after. On Sunday, about twelve o'clock, her head began to be affected, and soon after grew so giddy that she could hardly sit up in the bed: this was accompanied with a ringing in her ears; an universal tremor over her body; and an excessive chilliness, which neither warm liquor, nor all the bed-cloaths they could heap over her could remove. The giddiness and ringing in her ears lasted till Monday afternoon, the tremor still longer, and did not intirely disappear till Wednesday. But the coldness, which had been excessive all the Sunday afternoon, went off some time after her husband went to bed to her.

Her throat was a good deal excoriated by the acrimony of the nitre, and it is very probable that her stomach had suffered in the same manner; for she could not, till Thursday, swallow any thing that had the smallest degree of pungency, without suffering very severely, both during the time it passed her throat, and for some time after it got into her stomach; though at the same time she could use mild and mucilaginous things, such as linseed tea, or sweet milk, with very little pain either in her throat or stomach.

former



former experiments, till it came to the standard at which it had been before I took the nitre.

On comparing this experiment with the former ones, the difference appears very considerable; for the effects of one drachm newly dissolved, were much greater, and more evident than the effects of a drachm and a half which had remained long in a fluid state.

#### EXPERIMENT XVII.

Having now pretty well ascertained the quantity of nitre I could bear at one dose, and also discovered that its effects were much stronger when given newly dissolved, than when it had remained long in a fluid state, I next resolved to try how often I could bear these doses to be repeated. For this purpose I dissolved six drachms of it in a quart of water, which I began to drink early in the morning; and by taking small draughts of it as often as I had convenience, I finished the whole at eight o'clock that night, without feeling any uneasiness from it, or being sensible of its having operated any other way than by urine.

#### EXPERIMENT XVIII.

Two days after, I dissolved one ounce of nitre in the same quantity of water, and drank it in the same time; it gave me no uneasiness, nor had any sensible effect.

#### EXPERIMENT XIX.

Some days after this, I dissolved one ounce and a half of nitre in three pounds of water, and took a draught of it every hour, except when in bed: the whole was drank in twenty-four hours. After four or five draughts, I felt a slight chilliness at my stomach every time I took it; but this generally went off before the time of taking the next draught, and on that account gave me but little pain.

#### EXPERIMENT XX.

I now resolved to try what would be the effect of the same quantity of nitre, when every different dose was taken immediately on its being dissolved. For this purpose, I divided one ounce of it into eight equal parts, and took one of these parts, dissolved in four ounces of water, every ninety minutes. The weather was at this time very warm, and therefore the first three or four doses cooled and refreshed me; the fifth and sixth, however, gave me a chilliness and pain in my stomach; the seventh and eighth increased these sharp stinging pains, not only in my stomach, but through my whole body; which were so violent, that for fifteen minutes after each dose, I could not breathe without feeling a very acute pain every inspiration.

#### EXPERIMENT XXI.

As I had been able to take one ounce and a half of nitre with very little inconvenience when it had been long dissolved, I resolved to make one more effort to try if I could manage the same quantity, when every dose was taken immediately after being dissolved. I therefore prepared eight powders, of a dram and a half each, with a design to take one of them every ninety minutes, as in the last experiment: the second dose gave me a chilliness at my stomach; the third gave me some of the above-mentioned pains; and the fourth increased them to such a violent degree, that I was obliged to desist from taking any more.

From some of the former of these experiments, it appears evident, that nitre has a power of almost instantly retarding the velocity of the circulation, and of surprisingly diminishing the number of pulsations. Whether any real medical advantage may be derived from this, I shall not positively affirm; though I think it is very possible, that in cases where the momentum of the blood is so great, from any sudden cause, that the vessels are in danger of being ruptured, a large dose of nitre instantly given, might throw a sort of damp upon the vital flame, and obviate that misfortune till the patient could be assisted by bleeding and other remedies. And I would further infer, from the chilliness produced by large doses of it in my stomach, and the refreshing coolness it diffused over me in the warm weather, that if given immediately after being dissolved, it would prove a highly useful medicine in all ardent inflammatory distempers, where great thirst, a dry tongue, and a strong pulse, indicate the use of cooling antiphlogistic remedies. This inference is not founded on mere speculation and theory, but on experience and observation also; for as some of these experiments which discovered its instantaneous operation on the circulation, were made near three years ago, I have since then had several opportunities of trying it in inflammatory cases, and have ordered it to the quantity of two scruples every hour, or every hour and a half, taking care that every different dose should be given newly dissolved. In this way I have generally seen it sit very easy on the stomach; often procure great remission of the symptoms; and almost always either work off by a plentiful discharge of sweat, or urine, according as the patient took along with it warm or cold drink.

I would by no means insinuate that this is a new practice; for the illustrious Mr. Boyle, in his experiments on the reintegration of nitre, calls it one of the coldest bodies in the world, and adds, that "on this account physicians and chymists were wont to give it to allay the inward

"inward exaltations of the blood." All, therefore, that is uncommon in the use of nitre in febrile cases, is the giving it immediately after the salt is dissolved; which I was first induced to do, by observing, that a solution of it very soon lost that coldness of which it was at first possessed, whether it was kept shut up, or in the open air. The trials I afterward made with it on myself shew, that when it was long kept in a fluid state, it lost, in a great measure, its power of affecting my body also. This will appear by comparing Experiments XI, XII, XIII, XIV, and XV, with Experiment XVI; and by comparing Experiments XVI, XVII, XVIII, and XIX, with Experiments XX, and XXI, will be further illustrated and confirmed.

Whether nitre will communicate cold to the body of a living animal, in the same manner as it does to water when dissolved in it, is what I could not discover by the thermometer. The sensations, however, which I felt, after taking large doses of it, induce me to think that it does; and the extraordinary cold felt by the lady in the case I related, together with the remarkable sinking of my pulse, and the effects of it in inflammatory distempers, all strongly corroborate this opinion. If I had seen the lady during the time her cold fit lasted, I should have had the best opportunity that perhaps has ever offered, of determining, by the application of the thermometer, whether its frigorific power reached to the external parts of the body; but, unfortunately, I knew nothing of this complaint till it was intirely over. On mentioning her case to Dr. Alexander Monro, professor of anatomy, I was by him favoured with a sight of Dr. Clerk's account of the cases of three journeymen shoemakers, who all at the same time had taken large doses of nitre, two of them two ounces each, and the third an ounce and a half. They were all seized immediately with a burning heat at their stomachs, accompanied with vomiting, which are all the symptoms mentioned. If this was literally true, it would overturn the theory of nitre acting as a cooler: but I imagine what they called a burning heat was not so much a real sensation of heat, as of pain occasioned by the purgency of the nitre; and my reason for this opinion is, because, on examining the common people of this country, I have generally found that they describe almost every complaint of the stomach by the name of a burning heat. As little regard is therefore to be paid to their definition of any sensation, I think this symptom, to which they gave the name of heat, is by no means a proof that it

really was so; or that nitre has any power to augment the constitutional warmth of any animal, as we see it so evidently possessed of a quite contrary power, when mixed with any fluid out of the body.

When I began these trials, I expected that the effects of nitre would have been so visible, as to have enabled me to determine to what degree of cold it was capable of reducing my body below its usual standard. But though I have been disappointed in this, perhaps future experiments, and more accurate observations, may still discover it: and though I have not been able to throw that light which I wished and expected on this quality of it, yet I have certainly demonstrated that a much larger quantity of it may be taken, than any person that I know of had ever done before me; and that not only by the experiments on myself, but, since they were made, by giving it in nearly the same doses to others, without having ever met with any complaint of consequence from this liberal use of it\*; so that we may easily see how trifling and insignificant the common method is, of giving only a few grains at a dose, and repeating these doses at such long intervals, as perhaps not to take above three or four of them in a day. We may also learn from these experiments, that when it is given as a cooler, the Decoct. Nitros. of the *Edinburgh Dispensatory*, or any other preparation of it, where it remains long in a fluid state, are very unfit methods of exhibiting it, as they intirely divest it of that quality which was the sole intention of prescribing it.

After a number of repeated trials had thoroughly convinced me, that large doses of this salt had an almost immediate power of diminishing the number of my pulsations in a minute, I imagined that this was owing to its cold lessening the irritability of the heart, and therefore concluded that any cold body received into the stomach would, in some degree, have the same effect. Upon trial, I found this conclusion to be just: for large draughts of very cold water, hastily drank, always lessened the number of pulsations in a minute, three, four, or five, and sometimes more; which shews the absurdity of condemning cold water in fevers, and at the same time allowing cold draughts medicated with nitre, to be given; though it appears that they both act in the same manner, only the latter is much more powerful than the former, and therefore, on the hypotheses by which cold water is forbid, should do more mischief.

Was I to endeavour to give an account of all the virtues which have from time to time been

\* When these experiments were made, I had not seen Dr. Brocklesby's book; but have read it since, and find that he used to give 3x. of it in twenty-four hours with great success; which I am persuaded would still have been greater, had he given it always newly dissolved.



ascribed to nitre, I should swell this Essay much beyond my intention. I shall therefore refer the reader to *Hoffman de salium mediorum, & de præstantissimâ nitri virtute*, and to *Stbal de usu nitri medico*, where several curious observations on its virtues and effects are mentioned. Dr. Lewis, a later writer of no small credit, reckons, that it often gives relief in stranguries and heat of urine, proceeding either from a simple or a venereal taint; and indeed the greatest part of practitioners have always given, and still continue to give it in the venereal *ardor urinæ*. This practice, however, I am apt to believe, has taken its rise purely from the name of *ardor* having always been given to the pain in evacuating the urine during the time of a venereal inflammation of the urethra, and the name and virtues of a cooler having always been attributed to this salt. But it is certain, that the urine passed during the time of a venereal inflammation is no warmer than at other times, and therefore to prescribe a cooler to allay the heat of it is absurd; and I am persuaded that, on a free and candid examination of this matter, it will be found that nitre has not the smallest power of alleviating the pain which is then felt; for I have given it in all the different stages of this disease, in small and in large doses; but from the sole use of it, in a great number of trials, have never been able to observe that it afforded the least relief. Nor, when we consider the cause of that pain, and the effects of nitre, have we any reason to expect it: for the pain certainly proceeds from the acrid salts in the urine stimulating the inflamed or excoriated urethra; and a solution of nitre applied to any excoriated part, always gives considerable pain. For experiment sake, I rubbed a little of the cuticula from my arm, and, after the smarting was over, applied to it some cold water. From this I felt no uneasi-

ness; but when ten grains of nitre were dissolved in two ounces of the same water, and a little of the solution applied to the same part, the pain was very considerable, and always augmented in proportion as the solution was made stronger. Experiments assure us, that on taking nitre into the stomach, the urine becomes impregnated with it. The larger, therefore, the doses are, the stronger will this impregnation be, and the greater stimulus added to the urine; so that we may reasonably conclude, that this salt will rather augment than diminish the pain in evacuating it.

I met with a strong instance of this, about a year ago. A young gentleman had got a venereal dysury, and pretending to cure himself, relied solely on nitre, which he had taken to the quantity of about six drachms per day, in warm cow whey. When I heard how he had treated himself, I suspected that the quantities of nitre he took daily had superadded a stimulus to that which is naturally in the urine, and occasioned the increase of his pain. I therefore directed him to leave off the nitre altogether, and to make use of the same quantity of gum arabic in its stead; by the use of which, dissolved in large quantities of the whey, he very soon got intirely the better of his complaint.

I shall finish this Essay by observing, that though nitre may be given in much larger doses than the present practice allows of, yet they ought not to be ventured on without due caution; for there are many weak and delicate stomachs which cannot easily bear the cold it produces, and others in whom it always creates sickness and nausea. It will therefore be prudent, when we are not acquainted with the constitution, always to begin with small doses, and rather increase them afterwards as we shall find occasion, than rashly venture on them at once.

## LECTURE XXVII.

## ALUMEN.

## SECT. I.

**A**LUMEN, alumen rupeum, alumen glaciale *offic.* Alumen rochæ seu rupeum, *Worm. Mus.* 23. Alumen rupeum candidum, & pellucidum, *Aldrovand. Mus. Metal.* 334. Alumen factitium in agro Eboracensi, *Mor. Pin.* 217. Alumen rupeum *offic.* Dale 28. Common alum. This is a white semi-pellucid salt, of a sweetish subacid and very astringent taste, and no smell.

“Alumen est sal coloris albi vel dilute-rubelli, saporis dulcis, styptici; in aqua solutum, decenter inspissatum, frigescentum, formans crystallos semipellucidas, octoëdras: quæ ad ignem primo liquefunt, ebulliunt, spumescunt, copiosumque phlegma eructant; dein in massam levem, spongiosam, albissimam abeunt; igne vero tandem magis aucto, fundunt similem spiritum acidum ac vitriolum, vel sulphur accensum, superstita terra levi, alba, ad margarum naturam accedente.” *Cramer* i. p. 248. where you have an account of the different kinds of minerals from whence alum is produced.—He says that some of these minerals are bituminous, inflammable, and being laid in heaps naturally grow hot and take fire, emitting a fœtid bituminous smell, and leaving a spongy earth behind (*parum sapidam*): but if by throwing on water their burning is prevented, and they only heat and begin to crumble, “tunc alumine multo fiunt prægnantes.”—That some other minerals require a previous roasting in order to yield alum:—That the pyrites mixed with vitriol frequently yield a considerable quantity of alum:—And that the aluminous mineralia bituminosa, recent and pure, chymically examined afford little or nothing of acid, at least not near so much as is correspondent to the quantity of alum, that is got from them, after they have been for some time exposed to the air. Nor can any such earth be found in them as is got from alum. “An ergo, *adds he*, aluminis acidum, per aerem advectum, sic in aluminis matricem deponatur, juxta sententiam *Cl. F. Hoffmanni*; an vero ope aeris aut ignis aut utriusque simul, nova amborum aluminis principiorum, terrestris nempe & salini acidi, generatio fiat, uti opinatur *Cl. Henckelius*, cujuslibet judicio & experientiæ relinquimus.” Thus *Cramer* l. c. See also his *part. alt.* p. 295.

“At *Whitby* in *Yorkshire* they burn the mine with whins and wood till it be white, after which it is thrown into a pit and steeped in water eight or ten hours. The lixivium is then boiled in iron pans 9 feet long, 1 broad, and 2½ deep. After it is enough boiled down, which they know by its weight, they put into it of kelp-lye about ⅓, and when it boils again they draw it off into a settler, where it stands about an hour, that the dregs may fall to the bottom; from which it is then drawn off into coolers, pouring into them a quantity of urine, viz. about 8 gallons into a cooler that contains two



“ half tuns. Thus in four days and nights the alum is cryſtalliſed to the ſides  
 “ of the coolers. The mother remaining is mixed with freſh lixivium, and  
 “ evaporated as before. The alum ſcraped off, waſhed and drained, is melted  
 “ in the rocking-pan, and thence conveyed into tuns, where it continues ten  
 “ days : after which they unhoop and unſtave the tuns, take out and chip the  
 “ alum, and ſo carry it to the ſtore- houſe.” Vide Mr. Ray’s *Colleſt. &c.* and  
*Philof. Tranſ.* No. 142, where Mr. Dan. Collwall has given a more full but  
 leſs diſtinct account of the alum works at *Deptford* in *Kent*. According to him  
 the mine is burnt with Newcastle coal, wood and furzes, and the pans are made  
 of lead. “ Terræ & fæces ſuperſtites, ſi denuo aeri exponuntur, de novo im-  
 “ prægnantur alumine, at non omnes.” *Cramer* ii. p. 292.

In the kingdom of *Naples* there is a mountain called *Salfatara*, anciently  
*Campi Pblegræi*, on the top whereof is a large excavated hole (or plain) of an  
 oval figure, 1500 (1246 *Mem. Acad.*) feet long and 1000 broad. Here in  
 ſummer a ſaline duſt ariſes on the ſurface of the ground, which they ſweep  
 into ditches full of water in the bottom of the plain, and evaporate that water,  
 in veſſels ſunk in the earth, by ſubterranean heat only. Vide Ray’s *Obſerv.*  
*Harris’s Colleſt.* ii. p. 568. *Mem. Acad. an.* 1702. *Matthiol.* p. 945.

2. *Alumen Romanum offic.* *Alumen rochi (Gallis) offic.* *Alumen rochæ,*  
*Aldrov. Muſ. Metal.* 332. *Worm. Muſ.* 23. A. factitium è præduro lapide  
 ſubrubro confectum, *Calc. Muſc.* 169. A. rupeum, ſeu rochæ, *Charlet. Feſſ.* 9.  
 A. Romanum quibusdam. Roch alum, *Dale* p. 28. Roman or Civita Vecchia  
 alum. This is of a reddiſh colour. — “ Eſt autem color aluminis albus, vel  
 “ ſubrubellus, ſi ejus terra talis eſt.” *Cramer* ii. 298. “ Rupeo ſimile eſt, ſed  
 “ pallide-rubens. Ex *Italia, Smyrna, &c.* ad nos transportatur. Conſicitur  
 “ eodem modo quo rupeum, ſed ſine additione urinæ & kali, ut nos monuit  
 “ *D. Tanc. Robinſon.*” *Dale* 28.

3. “ *Alumen plumoſum, and alumen ſciſſile offic.* *Alumen ſciſſile, quod*  
 “ *glebatum inſtar eſt, & plumoſum oblongum vocatur, Schrod.* p. 180.  
 “ A. plumoſum vel ſciſſile, *Matth.* 963. A. plumoſum *offic.* A. plumæ, quod  
 “ ſciſſile Latinis, *Aldrov. Muſ. Metal.* 331.” *Dale* p. 28. The true plumoſe  
 or feathered alum is a ſalt, in colour and grain ſomewhat reſembling the  
 amiantus, taſting like common alum. It is a ſtranger in the ſhops; and the  
 amiantus is kept for it: hence it is called a ſtone in our Pharmacopœia.

“ No traveller that I know has deſcribed the true plumoſe alum; it is in  
 “ large paquets, compoſed of ſlender filaments, like the fineſt ſilk, ſilver-  
 “ coloured and ſhining, an inch and a half long or two inches, and of the  
 “ ſame taſte and quality or nature with the ſtone alum. It ought not to be  
 “ confounded with the amiantus as is commonly done. Wherever I aſked  
 “ for the plumoſe alum in *France, Italy, Holland,* they always ſhewed me a  
 “ bad kind of amiantus, brought from about *Caryſto* in the iſle of *Negro-*  
 “ *pont, &c.*” *Tourneſ. Account of Milo, Voy. Let.* 4. eſpecially v. i. p. 63.

*Alumen.* Gr. *στυπτηρία*, is frequently mentioned in *Hippocrates’s* works, where  
 we find *alumen Ægyptium*, *alumen Melmum*, *alumen ſciſſum* (*στυπσχιστη*)  
 as well as *alumen ſimplex*. “ Sunt aluminis ſpecies plurimæ. Verum ad  
 “ medendi uſum ſciſſile, rotundum, & liquidum expetuntur. Optimum  
 “ verum ſciſſile: & in hoc genere laudatiſſimum quod recens eſt, candidiſſi-  
 “ mum, calculorum expers, graveolens & perquam aſtringens: inſuperque

“ nec

“ nec glebæ modo, nec assulose compactum; sed sigillatim quasi in capilla-  
 “ menta canescentia dehiscens, quale est quod trichites appellatur in Ægypto  
 “ proveniens. Reperitur quoque lapis huic alumini persimilis, qui tamen  
 “ gustus judicio internoscitur, quod non astringat.” *Diosc.* l. 5. c. 123. p. 373.

“ Amianthus (αμβιστος) alumen plumosum est lapis alumini scissili non ab-  
 “ similis, adeo ut nonnullis inter se confunduntur. Differt ab alumine  
 “ scissili, quod hoc combustibile sit, saporisque adstringentis, illud non item.”  
*Schroder.* p. 352. Vide *Plin.* l. 35. c. 15. p. 853. si placet. The alumen sac-  
 charinum is a composition. Vide *Lem. Diss.* p. 20, or *Schrod.* p. 480. Alumen  
 catinum, is the same with soda or cineres clavellati, pot-alum, pot-alhes.  
 Vide *Savary Diss.* ii. p. 1588. *Lemery's Dictionary*, p. 150.

## S E C T. II.

Alum is a strong astringent or styptic, and commended internally in fluxes, hæmorrhages, intermitting fevers, &c. and is used outwardly for sore mouths and throats, spongy gums, loose teeth, moist and foul ulcers, excoriations, shingles, hæmorrhages, &c.

“ Exsiccat et adstringit, incrassat, &c. usus aluminis crudi præcipuus ex-  
 “ ternus est (quamvis ab empiricis et interne pro febrifugo, imo universali,  
 “ exhiberi soleat) ac imprimis in angina et columella laxata, putredine gingiva-  
 “ rum, tumoribus pedum oedematosis, &c. N. Sunt qui in dysenteria alumen  
 “ exhibent. *Præp.* Purificatio, ustio, salificatio, distillatio, subtilisatio.” *Schrod.*  
 p. 480.

1. It is styptic and acid, or acerbi saporis; and so much contracts the skin, and dries it, as to deaden it: thus it acts like an escharotic, though it is not caustic. “ Saporis dulcis austeriusculi est.” *B. Chem.* i. 46. “ Saporis dulcis  
 “ styptici.” *Cramer*, l. c. “ Saporis acris, urinosis, austeri et astringentis.”  
*Dale* 28.

2. It coagulates milk, blood and its serum. “ Solutio aluminis sanguinem  
 “ coagulat.” *B. Chem. M. S.* p. 219. “ Aluminis solutio lac coagulat, he-  
 “ liotropi solutionem purpuream efficit, sublimati corrosivi solutionem non  
 “ mutat, gallarum infusionem turbidam et exalbidam reddit, cum aq. calcis  
 “ colore albicante donatur; in oleo tartari in coagulum album concrescit, absque  
 “ ullo colore vel fumo. Sæpe ex mixtura solutionis aluminis et olei tartari,  
 “ odor urinosus exhalat, si nempe alumen cum urina depuratum fuerit, ut  
 “ *Anglicum*; quod quidem non contingit, si *Romanum* usurpetur. Constat  
 “ alumen ex sale acido vitriolico, et terra astringente bolari vel cretacea, stric-  
 “ tissime conjunctis.” *Geoff.* i. p. 139.

3. It consists of an acid and an earth: the acid is the same with that of vitriol and sulphur; and hence it does not act on a solution of green-vitriol or chalybeate waters, like vegetable astringents; whose acids the acid of vitriol drives out, taking their place, and so precipitating the iron, it being left by its dissolvent. But the earth of alum differs from all known earths, boles, or chalks. “ Est terra aluminis singularis prorsus naturæ a reliquis cognitis na-  
 “ tiva diversa. Ex creta enim, calce, spathis, in acido ejus solutis, pro-  
 “ ducuntur quidem salia, alumini quodammodo, nequaquam tamen perfecte



“ familia.” *Cramer*, p. ii. p. 297. Neither can this earth, divested of its acid, be called astringent, more than chalk or marl, or even the boles if freed of their acid: the stypticity is owing to the union of both its principles.

4. According to *Dr. Grew* aquæ ʒij. dissolve aluminis ʒij. ʒj. that is, aquæ p. vii. dissolve more than alum p. i. According to *Boerhaave*, *Ch.* i. 46. 576. it requires aquæ stillatitiæ p. xiv. to dissolve aluminis p. i. “ It dissolves in “ about fourteen times its weight of water.” *New Dispens.* p. 75. And by the experiment I made, aq. ʒij. dissolved aluminis p. i. gr. xxxvi. that is, aquæ p. x. dissolved exactly aluminis p. i. Whence arises such difference? Is it from the alum, or the season when the solution was made? *Nescio*.

5. The ancients seem to have used alum only externally; and *Dioscorides* enumerates a great variety of cases in which it was applied: “ Vim habet ex- “ calefaciendi, says he, astringendi et expurgandi quæ pupillis oculorum ca- “ liginem offundunt, palpebrarum quoque carnes, aliasque excrementias absu- “ mendi. Ulcerum putrescentia compescit, et sanguinis eruptiones inhibet, “ gingivas humore nimio flaccidas comprimit, mobilesque dentes, cum aceto “ aut melle firmat;” and so goes on to commend it for the “ aphthæ, exan- “ themata, aurium rheumata, lepra, pruritus, unguium scabritiæ, pterygia et “ perniones, phagedænica, nomæ, furfures, lendes, pediculi, ambusta cum “ aqua, oedemata, alarum inguinumque virus;” and adds, “ Ex Melo autem “ advectum, etiam mulieribus præstat ne concipiant, ante coitum ori vulvæ “ inditum; foetus quoque pellit. Aluminum denique genera gingivis ex- “ crescentibus, uvæ ac tonsillis accomodantur: itemque ori, auribus, ac veren- “ dis cum melle illinuntur.” *Dioscorid.* l. 5. c. 123. p. 374. But the moderns give it inwardly as an astringent; and thus as it binds it may, per accidens, prove diuretic, sudorific and deobstruent; and in large doses emetic and cathartic, as galls have done, by its troublesome and disagreeable stimulus: to which may be attributed its effects in agues. “ Singulare febrifugum latet in alu- “ mine.” *Hoffm.* in *Schrod. Manget.* p. 319. Vid. *Quincy, Pharm.* p. 98. *Geoff.* i. p. 142. I don’t much approve of its use here, or even at all internally, unless in very small doses. Vegetable astringents are more safe and as effectual. “ Aluminis usus (in procidentia ani) propter nimiam stypticitatem, caute vi- “ tandus est. Sed et corrodit præterea partem, venulasque aperit.” *Hart. Prax.* p. 256.

“ Terra aluminis, expulso acido, relicta, levis subtilis, bolo similis, cum “ carbonariæ inflammabilis materie triplo exusta, phosphorum *Homborgianum* “ dat; adeoque virtutem singularem excitando cum aere igni videtur possidere.” *B. Chem.* i. p. 46.

### S E C T. III.

Alum is given to ʒß. though I think ʒj. enough at a time. It is chiefly used in the aqua aluminosa, aq. styptica, and pulvis stypticus. The alumen ustum, aluminis phlegma, and spiritus are of little esteem.

Alumen ustum is alum freed of its phlegm. The process is well known. It is reckoned thus more styptic and acrid than unburnt: but my taste discovers no difference, nor is there any; for it must be dissolved before it act, or have any effect; and it cannot be dissolved without having more phlegm re-

stored to it than it lost in calcination. But applied, calcined or uncalcined, in powder it continues longer to act as a styptic than when dissolved.—Mr. *Lemery* (*Mém. Acad.* 1735) seems to think that the acid of alum also is driven away in this calcination. I calcined aluminis ʒij. in a crucible, and had aluminis usti ʒj. gr. xij; also aluminis ʒij. on an iron shovel, which gave usti ʒj. gr. viij; both of which were very white and very spongy. These, making together alumin. usti ʒij. ʒj. I dissolved in water, filtered and suffered to crystallize (which was very gradually done) in a China cup covered with paper, and had of crystals ʒiv. gr. iv. that is, gr. iv. more than was burnt of the alum (because it was not melted and rocked), and of the same taste with the common alum. The alum burnt in the shovel was gr. iv. lighter than that in the crucible; probably from the more free access of the air to it, and not from the absorbency of the iron, or from a greater degree of heat, since I had more of crystals than I took of alum; and all the phlegm could not be expelled by this degree of heat in either.

By a chymical distillation a phlegma and spiritus are drawn from alum. The phlegm or water rises in a sand-heat soon; but the acid spirit cannot be separated from the earth without a more intense and long continued fire. Mr. *Lemery* (*Chym.* 250) says, if a sufficient heat be given, and continued for three days, alum will yield as much and as strong spirit as vitriol: yet he had from aluminis lbv. only spiritus ʒviij. but from vitrioli lbv. spiritus and olei simul ʒxv. *Chym.* p. 497.

“ Si aluminis præcipitatio, per solutionem alcali fixi, vel volatilis urinæ putridæ perficitur, tum, sicuti in omni præcipitatione, plurimum præcipitantis alcalini salis alumini accrescit: unde pendere videtur, quod tam durable sit alumen, quales sunt crystalli ex alcali et acido vago fossili unitis, nec facile demittat suum acidum in igne. Mediocriter enim si ad ignem rubescit, valde parum acidi prodit; sed etsi postea summo diu continuato igne torqueatur, nihil amplius exprimi potest; ut hinc caput mortuum plerumque pro mera terra habeatur; quod tamen, si aqua affunditur fervida, longe maximam partem solubile, per iteratam evaporationem et crystallisationem, in formam aluminis, totum fere quantum rursus redigi potest. Affunditur alcali non modo ob præcipitationem ipsius aluminis, sed etiam separationis vitrioli causa, quod alias difficile procederet: sed simul cavendum ne nimium alcali addatur, &c.” Vid. *Cramer*, ii. p. 298.

“ Aqua aluminosa *Edin.* . . . is an injudicious composition. . . . The sediment is the mercury sublimate thrown down by the alum.” *New Disp.* 489. I prefer much the aq. alum. *Bateana*, as directed in the *Pb. Lond.* or even the aq. styptica, if freed from the oleum vitrioli.

## L E C T U R E XXVIII.

### B O R A X.

#### S E C T. I.

**B**ORAX, tincar & chryfocolla *offic.* Nitrum factitium (ex fossili illo quod *Arabes* tincar vocabant) *vulgo* borax, *Arabibus* baurach; *Græcis* chryfocolla, *Worm. Mus.* p. 21. Borax, chryfocolla factitia, lanterna *Plinii*, & tincar *offic.*



*offic. Dale*, 29. Borax, borace or tincal is a white semi-pellucid salt, somewhat resembling small pieces of alum; of a sweetish taste at first, then urinous or alkaline; and of no smell. It is prepared by boiling from its proper mineral.

“Borax, seu chryfocolla, est sal difficillime in aqua solubile, album, semi-pellucidum, crystallis octoedris, saporis subdulcis in initio, in fine vero urinosi alcalini. Igni expositus borax, cum sibilo in spumam attollitur, denique candente vase fluit tenuiter, tumque frige factus exhibet speciem subtilissimi vitri, in aqua tamen utcunque, sed difficillime solubilis.” *Cramer*, i. 58.

Aquæ ʒij. without the help of fire will dissolve boracis ʒj. ʒß. and no more, according to Dr. *Grew*'s experiments; that is, boracis p. i. requires near aquæ p. xiv. to dissolve it. “Magnam aquæ, vigecuplo majorem, copiam ad solutionem requirit et calorem magnum.” *B. Chem.* i. p. 44. Boracis siccissimi ʒß. ultra ʒx. aquæ exigit ut solvatur integre: unde ut i. ad xx.” *Ibid.* p. 576. i. e. Boracis p. i. requires aquæ p. xx. though assisted by heat. And I found that in the common air in September boracis p. i. required aquæ p. xxx. to dissolve it, for aquæ ʒij. dissolved not more than boracis gr. xxxii. This was *Dutch* borax; but what was brought from *London* for borax dissolved in water in as large a quantity, and as soon, as common salt. “Omnes terræ lapidesque, tritura bene commixti cum borace, in vitrum varie specie dissolvuntur. Metallorum difficiliter fluentium, uti est aurum, argentum, cuprum, ferrum, regulus antimonii, liquefactionem optime promovet borax, vix iis aliquid detrahens, &c.” *Vid. Cramer*, i. p. 59.

Native borax is taken out of the bowels of the earth in several places of *Persia*, &c. and being exposed to the air, acquires a kind of reddish greasiness, which nourishes it, and hinders its calcining. The *Persian* merchants commonly send it to *Amadabat*, where the *Europeans* purchase it. There is another species of natural borax, which is dryer, of a grey colour, and much resembles English vitriol long exposed to the air: but it is not really different from the former, having only by the influence of the air lost the reddish greasiness. The *Venetians* were the first who refined it. *Vide Savary Dict.* vol. i. p. 405. è *Pomet*.

*Mandelslo* says it grows like coral in the bottom of a river in the province of *Purbet*, upon the borders of *Great Tartary*. *Harris's Coll.* ii. 127. “The composition of borax is little known. *P. Herman* (in his *Mat. Med.* printed at *Strasburgh* in 1726, p. 651) says it is made in the East-Indies of a nitrous earth, calcined, powdered, decocted, and crystallized in the air, and afterward purified. (Then he gives his father's account of it, which, he says, he had from a German traveller and good naturalist, named *Naeglin*.) Our merchants bring it also from China, where it costs little. It is refined in Holland, and also in the suburbs St. Antony.” Thus Mr. *Geoffroy*, jun. *Mem. Acad.* 1732, p. 549—578. His father's account of it is this: “Borax nativa affertur sub lapillorum forma, avellanæ aut nucis juglandis crassitie, colore obscuro-viridi, rudis, crassa, terrestris, et quasi pinguedine obducta. Variis in locis effoditur, sed major pars ex Mogolum Imperio & ex Persia advehitur. Ibi in quibusdam metalli fodinis præsertim cupreis, stillat aqua salina, turbida, subviridis, quæ sedulo colligitur: ad debitam spissitudinem evaporatur, et postea in foveas quasdam in terra excavatas, et pasta ex horum fontium limo et animalium pinguedine præparata circumobductas, infundi-

“tur,

“tur, et eadem pasta tegitur: tandem post aliquot menses apertâ foveâ, aqua  
 “in lapillos concreta reperitur. Effodiuntur lapilli simul cum terra adiposa,  
 “et est borax nativa.” *M. M.* i. p. 153. And *Reiger (Introduct. ad Elench. Rom.* vol. ii. p. 244.) says, “*Mercatus* in Metallotheca Vaticana (Romæ im-  
 “pressi in folio, 1717) eandem rem refert.” But this appears to be a more  
 whimsical than credible story: and in *Douglas’s* translation of *Geoffroy* it is non-  
 sense.—“Conficitur Venetiis, ex cremato quodam lapide candido et fossili  
 “quem boracem crudum vocant. Non solvitur, nec saporem ullum præ se  
 “fert: sed ustione et præparatione mordentem saporem acquirit.” *Worm. Mus.*  
 p. 21. *Verbo*: Its origin is little known.

Borax does not appear to be the chrysocolia *Dioscoridis*, l. 5. c. 104. p. 365.  
 nor santerna *Plinii*, l. 33. c. 5. p. 795. though perhaps the tincar *Arabum*.—  
 Vide si placet *Geoff.* i. p. 151.

“Borax est substantia pellucida glaciei instar, alumine durior, ex lapide  
 “nitroso, vel chrysocolia calcinata et in aqua dissoluta, cocta et in crystallos  
 “concreta, saporis acris salini et nitrosi. Scilicet in India orientali eruuntur  
 “ex fodinis terræ nitrosæ, quæ leviter calcinatæ, in pulverem tritæ coquuntur  
 “affusa aqua, vel lixivio forti, hinc exponuntur ut concrecant in crystallos,  
 “quæ rarius in India ulterius præparantur, sed huc locorum translatæ ulterius  
 “solvuntur, crystallisantur donec pelluciditatem adipiscantur.” *Herman, Cy-  
 nosura M. M. (Argentorati 1726 in 4to.)* ii. p. 65.

*Cartheuser* conjectures “Boracem esse sal medium, valde terreum, ex pauco  
 “acido vitriolico, pauca substantia unguinosa inflammabili, copiosa terra al-  
 “calina vitrescibili, et multa pariter aqua (utpote  $\frac{1}{2}$  totius) conflatum.”  
*Fund. M. M.* i. 370. But *M. Baron* seems to demonstrate, by the regeneration,  
 as well as analysis of borax, that it consists of the sal sedativum, and of the al-  
 caline basis of sea-salt united. Vide *Macq. Chym. Theor.* p. 47.

*Schroder (Pharm.* p. 290.) gives us this prescription for the making of borax:  
 R Sal. ammon. nitri, tart. calcinat. g. arabic. sal. commun. āā ʒj. mastich.  
 alum. roch. āā ʒß. pulverisatis affunde urinam, filtra et coque donec materia  
 in salem concreseat. — N. Alii conficiunt ex sale nitro et urina puerorum in-  
 vicem commistis et coagulatis. Alii boracem nostratam ex peculiari lapide  
 (boracis nomine) eoque calcinato extrahi volunt, monente *Tboldio* in *Halographia*.  
 —His borax simplex is the lapis busonites, p. 797.

## S E C T. II.

Borax is antacid, attenuant, deobstruent and diuretic; and is chiefly com-  
 mended as uterine in obstructis mensibus, hard labour, and retention of the  
 secundines and lochia; and as a cosmetic outwardly applied. Venerem stimu-  
 lare dicitur.

“In medico usu facit ad mēstrua ac partum provocandum, veneremque  
 “stimulandam.” *Schroder*, p. 290.

1. It is of a penetrating urinous taste; not acrid, neither bitter nor salt; yet  
 the impression it makes is pretty lasting, and excites a plentiful discharge of the  
 saliva. “It is bitterish to the taste at first, then sweetish.” *Mem. Acad.* 1703.  
 “Sapore subamarefcente, sed dulcescente in exitu.” *B. Chem.* i. 44. “Sapo-  
 “ris



“ris acris, falini, et nitrosi.” *Dale*, 29. “Saporis est falsi suburinosi.” *Nucl. Belg.* “Sapore falso, cum levi acredine quadam lixiviosa.” *Geoff.* i. 153. “Saporis subdulcis in initio, in fine vero urinosi alcalini.” *Cramer*, i. 58. “Refined borax, whether Dutch or Venetian, to be good, ought to be clear and transparent, of a taste almost insipid.” *Sav. Diēt.* i. p. 405. è *Pomet.* The London spurious kind I mentioned was very bitter at first tasting; and *Wermius*’s saporis mordentis. Are there different sorts of true borax?

2. “Solutio boracis in aqua fortissime serum sanguinis diluit, colorem non mutat. Idem præstat in parte sanguinis rubra.” *Boerb. Præleſt. Ch. M. S.*—“Sal ammoniacus, nitrum, sal fontium, gemmæ, maris, borax, sanguinis rubredinem exaltant, servant, coagulum impediunt utcunque.” *Id. Chem.* ii. p. 378.

3. It does not effervesce or make any ebullition either with spirit of vitriol or oil of tartar; yet it absorbs the acid of tartar, and makes it soluble, and precipitates the vitriols and alum. “Borax neque cum acidis salibus, neque cum alcalibus, tumultuatur, sed cum acido vitriolico placide se consociat, et ambo licet fixiora, in salem fere insipidum, et plane volatilem convertuntur. Boracis solutio heliotropii tincturam non mutat: violarum syrupum viridi colore inficit; sublimati corrosivi solutionem croceo-rubentem efficit; cum salis ammoniaci solutione permixta, odorem emittit urinosum.” *Geoff.* i. p. 154. “Crystal. tartari pulv. ℥iv. & boracis contus. ℥ij. boiled  $\frac{1}{4}$  horæ in aquæ ℥xij. dissolve; the liquid solution continuing very acid and clear, though diminished from ℥xviiij. to ℥xj. ℥iv. By evaporation it may be brought to the colour and consistence of gem de prunier; but in moist air it runs p. d. like salt of tartar.” Vide *Lemery, Mem. Acad. an.* 1728. p. 387. 408. For its effects on the vitriols and alum, as also on the juice of violets, solution of sublimate and lime-water, see *Geoff. Mem. Acad.* 1732. l. c.

4. “Distilled by a retort boracis ℥xvj. gave of an insipid clear water ℥vj. and the residuum, though as it were vitrified, when dissolved in water and crystallized, was borax as before.” Vide *Lemery Diēt.* p. 86. where you have an account of its distillation with bole, with salt of tartar, of its calcination, &c. Old *Lemery* reckoned borax a neutral salt; *Homburg, Geoffroy*, father and son (both), and *Lemery* the son, take it for a fixed alkali, or mineral urinous salt; with which it certainly in some measure agrees, but not in every particular: in many things it is singular; and its history is yet defective.

5. It is extravagantly recommended in many diseases, both inwardly and outwardly by some; particularly by *Joannes Laur. Bauschius*, in his *Schediasma Posthumum De Cæruleo et Chrysocolla*, *Jenæ* 1668, in 8vo. Vide *Bib. Pharm.* i. p. 556—562.—“Cum animadverterent mulieres boracem pannis sericeis splendorem conciliare, existimaverunt etiam ab ejusdem solutionibus, cuti suæ nitorem inducere posse; unde in aquis cosmeticis, et pomatis frequenter adhibetur.” *Geoff.* i. 155. Did women compose the bals. egregium pro manibus, and aqua columbarum cosmetica *D. Charas*? “Borax taken alone in powder will provoke to vomit; but it is seldom used for that purpose.” *Quincy*, p. 169.

S E C T. III.

Borax may be given to ʒj. in powder; though ʒß. is seldom exceeded. We use it little except in the pulvis ad partum, whereof ʒj. is a sufficient dose.

Dosis ad ʒj. *Bausch*, & *Nucl. Belg.* — ad gr. xx. *Lemery*: — a ʒß. to ʒj. *Geoffroy*; whose receipts for suppression of the menses and retention of the secundines are not despicable. Vide vol. i. p. 154.

Borax is purified by solution, filtration, and crystallization; and then used only in the composition of the *sal sedativum* of the *Paris Dispensatory*.

V I T R I O L U M.

S E C T. I.

1. Vitriolum, vitriolum viride *offic.* Vitriolum viride, *Worm. Mus.* p. 24. *Charl. Fossil.* ii. “Chalcanthum viride factitium, atramentum futorium *offic.*” *Schwenck.* 373. “Atramentum viride durum, solidum, coctum.” *Kentm.* 13. *Dale* 29. Green Vitriol, or Copperas. — This is a semi-pellucid metallic salt, of a green colour; of an acrid, styptic, nauseous mineral taste, and irony or brassy smell; found in mines, or excocted from its minerals.

“Vitriolum viride, semi-diaphanum, crystallis conspicuum rhomboidalibus, sapore dulci, styptico, adstringente præditum, in igne primum liquefcit, vaporemque aquosum emittit, dein exsiccat, abitque in gryseum concretum (*νεμεα*) quod aucto igne tandem rubicundum fit; dum interea vapor acidus, suffocans, inde expellitur; in aqua solutum, hanc tingit eodem colore quo ipsa gaudet.” Vide *Cramer*, i. p. 242. The solution, though at first greenish, in time turns to a reddish saffron-colour. It is iron dissolved by the acidum sulphuris or vagum, and as much water as is necessary to its crystallization.

*N. B.* “Datur et sal acidum, vagum fossile dictum, in chalcantho, sulphure, alumine, quin ubique fere obvium, rarissime si unquam purum, sed hærens vel in metallis præsertim cupro et ferro, vel terris calcareis, sæpius vitrescentibus, ipsisque silicibus, vel inflammabile fossili conjunctum. His autem dotibus id se ab aliis distinguit, quod sit acidis omnibus reliquis cognitis ponderosius, fixius, hæc è matricibus suis excutens; cum aqua pura mistum, incallescens fortiter; cum oleosis cujuscunque regni, coiens in sulphur vulgare.” *Cramer*, i. 10.

Many medicinal mineral waters are impregnated with native green vitriol easily discoverable by vegetable astringents. “Aqua enim semper concurrere debet, ut acidum sulphuris, cum metallo, transeat in vitrioli formam; quia nullus sal virtute salina agit, nisi vel per ignem, vel per aquam sit solutus. Accidit quod crystallina vitriolorum forma et pelluciditas sine aqua haud acquiratur.” *Cramer*, i. p. 244.

It is found also in many mines in *Germany*, *Hungary*, &c. “In a mine near *Schemnitz*, now given over, I saw vitriol shooting upon the stones and earth; nay, upon the floor and sides of the passages, in the same manner as it does



“ in the pans and about the sticks, not hanging from the top like icicles as I  
 “ have seen it in several places before.” Thus Dr. *Brown*. Vide *Harris's Coll.*  
 ii. p. 514—516. Dr. *Fothergill* (who had been at *Goslar* in *Germany*) sent me  
 a piece of native vitriol, which he got in the *Goslar* mine; it was about six  
 inches long and one thick; cylindrical, but unequal or rough on the surface;  
 of a green colour and somewhat bluish. Being by accident broken, one half  
 of it, kept in the Physician's Hall, is still entire; but (1747) its surface be-  
 came of a rusty iron colour: the other half, which was put into my cabinet, in  
 about an year swelled, cracked, and fell-down into a white powder. Several  
 iron ores contain both the principles of vitriol. Vide *Cramer* i. p. 242—248.  
 How to extract vitriol from them, see in *Cramer*, i. p. 286, &c.

“ At *Bricklesay* in *Effex*, the vitriol stones are laid on a large floor, or bed,  
 “ in the open air, where the weather dissolves them; and the rain carrying  
 “ with it the salts runs into troughs, placed under them, or gutters disposed  
 “ to receive and convey the liquor, thus impregnate, to the cistern. Hence  
 “ it is taken and boiled in large leaden pans, a good quantity of old iron being  
 “ put in. When it is sufficiently evaporated, they pour it out into large  
 “ troughs, wherein it cools; the vitriol crystallizing to the sides of the troughs  
 “ and to cross bars put into them. The liquor that remains, after the vitriol  
 “ is crystallized, they call the mother; and reserve it to be again evaporated  
 “ by boiling. They gather these stones in several places besides the coast of  
 “ the island *Sheepey*.” Vide *Ray's Explic.* &c.

*Daniel Colwall*, Esq; says, “ The copperas stones, which some call gold-  
 “ stones, are found on the sea shore in *Effex*, *Hampshire*, and so westward: the  
 “ best being of a bright shining silver colour; the next of a rusty deep yellow,  
 “ the worst of an umber colour. In the midst of these stones are sometimes  
 “ found the shells of cockles, &c. small pieces of the planks of ships, and  
 “ pieces of sea-coal. That the beds of *Deptford* are about 100 feet long, 15  
 “ broad at the top, and 12 deep, shelving all the way to the bottom, and well  
 “ rammed with clay and chalk; on which the stones are laid about two feet  
 “ thick, where they will remain five or six years before they yield any con-  
 “ siderable quantity of liquor; but in time turn into a kind of vitriolic earth,  
 “ which will swell and ferment like leavened dough. Once in four years they  
 “ refresh the bed, by laying new stones on the top; and when they make a  
 “ new bed, they mingle a good quantity of the old fermented earth with the  
 “ new stones, whereby the work is hastened. Thus the old earth never be-  
 “ comes useless. That sometimes an egg will swim near half above the liquor  
 “ in the cistern, but in three minutes loses its shell; a drop of it falling on  
 “ hemp, flax, cotton, or woollen cloaths, or leather, will presently burn a hole  
 “ through it. That out of the cistern the liquor is pumped into a boiler of  
 “ lead, about eight feet square, containing about 12 tuns, into which they put  
 “ first and last 1500lb. of old iron for each boiling. When the liquor is  
 “ enough boiled, it is drawn into an oblong cooler, twenty feet long, nine  
 “ broad, and five deep; made of tarras, and tapering towards the bottom;  
 “ in which the copperas will be shooting fourteen or fifteen days; and gathers  
 “ as much on the sides as bottom to above five inches thick; but no bushes  
 “ are put into the coolers. And that copperas may be boiled without iron, but  
 “ with difficulty: without it the boiler will be in danger of melting. Some-  
 times,

“ times, on stirring the earth on the beds, they find pieces of copperas produced by lying in the sun.” *Phil. Trans.* No. 142. p. 1056. How the Italian vitriol is made vide in *Mathiol.* p. 940. “ At *Friberg* in *Misnia*, the vitriol is lixiviated from the calcined sulphur-ore after the brimstone is separated from it.” Vide *Dr. Brown* in *Harris’s Collect.* ii. p. 536.

2. Vitriolum cæruleum, vitriolum Romanum offic. Vitriolum cuprium, *Worm. Mus.* 25. V. cæruleum, *Charlt. Fossil.* ii. Chalcanthum Cyprium, *Math.* 941. *Aldrov. Mus. Metal.* 339. Atramentum cæruleum, Romanum coctum, *Kentm.* 14. Vitriolum cæruleum seu Romanum offic. *Dale*, 29. Blue or Roman Vitriol, or Celestial Stone. — It is a metallic salt, in neat, dry, semipellucid blue crystals or fragments; of a more nauseously styptic mineral taste than the green vitriol; and of a brassy smell, when rubbed.

“ Vitriola nativa duo modo numerantur, ferri nempe et cupri. Vitriolum cupri, purum redditum, est cæruleum, minus priore pellucidum, minus aquosum, ponderosius, non tam facile, sicuti prius, ad ignem fluens, sapore nausiosissimo, caustico, infestum; ceteroquin a priore non multum differens: in aqua solutum, colore cæruleo tingit eam. Utraque vitriola, simul juncta plerumque reperiuntur, sicuti et ambo metalla, ex quibus per acidum sulphuris solutis, ortum ducunt, vix unquam solitaria, sed inter sese varia proportionem mixta esse solent. Ferri interim vitriolum in concretis istis maxime predominatur. . . . An vero et in quibusdam locis subterraneis vitriolum cupri occurrat tam purum, ac est vulgo venale cæruleum, me latet. Videtur potius factitium esse, quod sub titulo Romani, Cyprii, &c. venditur.” *Cramer*, i. 243.

“ This mineral (copper-ore of *Herrn-grundt*) produces white, green, and blue vitriol, and a red clear transparent; as also a green sediment, of a green water.” *Dr. Brown*, vol. ii. p. 516. of *Harris’s Collection of Travels*. “ A solution of iron and copper aa p. æq. gives a very blue vitriol.” *Lemery, Mem. Academ. Roy.* 1707.

“ It is uncertain what way the blue vitriol is made. Many think it is extracted from a blue water found in copper mines; others think it is made of copper dissolved in sp. vitrioli.” *Lem. Dict.* p. 576. “ The Cyprian blue vitriol comes from *Smyrna* to *Marseilles*, from 15 to 20 quintals per annum.” *Savary Dict.* iii. p. 607. “ Fit vel ex solutione et crystallisatione cupri, vel ex cupro, aut ex India orientali ad nos adfertur.” *Dale*, p. 29.

“ Variis in locis præparatur, sed præcipue in Cypero et Hungaria. In quibusdam Hungariæ ærifodinis, prope *Smolnikium* & *Neusolium*, ex aqua quorundam fontium vitriolicorum conficitur.” *Geoff.* i. p. 124, 5. And no doubt the vitriolic springs called new and old Ziment, which *Dr. Brown* thinks turn iron into copper (vide *Harris’s Coll.* ii. p. 517), will yield plenty of blue vitriol. “ The blue vitriol, which is at present in use amongst us, is not brought from abroad, but prepared in England: its crystals are not so perfect as the foreign sort.” *Lewis, Ph. Ed.* (Lond. 1748) p. 96. & vide *N. Dispens.* p. 226.

N. B. “ Si plurimum aquis inhæret cupri vitriolum, cuprum inde per immixta ferramenta, copiose excussum tandem solidescit, et extrinsecus scabrum, puculatum, intrinsecus ex filis parallelis quasi aggregatum et secundum ho-



“rum ductum facilius quoque fissile, cæteroquin ductile, se exhibet.” *Cramer*, i. 244.

3. Vitriolum album *offic.* Vitriolum album, *Werm. Mus.* 25. *Charlt. Fossil.* ii. Chalcanthum candidum, *Aldrov. Mus. Metal.* 339. Atramentum album, durum, fissile, *Kentm.* 13. Vitriolum alb. *offic.* *Dale*, 30. White Vitriol, or Eye-copperas, is a metallic salt, found in mines, and excocted into loaves, or masses, of the grain colour and consistence of coarse loaf-sugar, tasting and smelling like the common green vitriol.

“Vitriolum quoque purum, in forma solida varia, passim in fodinis invenitur aliquando id congelatum est, gelicidii instar, tuncque vocatur vitriolum stalacticum, quod coloris est viridis, plus minus tamen cæruleo, cupri præsentiam indicante, temperati compactum, nec exterius nec interius illam figuram pre se ferens, qualem nanciscitur secundum artem crystallisatum. Ejusmodi vitriolum album habetur Gossariæ nativum, quod solutum in aqua, iterumque inspissatum, colorem album servat, nec quantum memini alibi reperitur. Est in eo cuprum et ferrum, sed et præterea aliud quid non metallicum, cujus natura nondum hætenus bene perspecta est. Unde, quantum scio, nulli hucusque licuit, id adeo imitari, quin arte factum facile a nativo distinguere possit.” *Cramer*, i. p. 245.

Some think that the white vitriol is made of the green, calcined or dried white. Vide *Lem. Diæt.* 575. *Savary Diæt.* i. 1542. *B. Chem.* i. 54. But such vitriol dissolved in water and crystallized, becomes again green vitriol as at first. Others think some lapis calaminaris enters into its composition; but “by pouring sp. sulphuris on different kinds of the lapis calaminaris, only a greenish vitriolic salt can be obtained.” Vide *Geoff. jun. Mem. Acad.* 1728. Mr. *Lemery*, in the *Mem. Acad.* 1735, thought he had proved by experiments that alum is one of the constituent principles of white vitriol; but in another paper (*Mem. Acad.* 1736) he owns several mistakes in the former, occasioned by accidental cracks in his vessels, which he had not observed when he wrote it. I mixed solutions of alum and green vitriol, to see if they would unite in shooting, but they separated in crystallizing, and produced nothing like the white vitriol. “Vitriolum album Gossariense, vel ferri mineram adhuc immaturam, vel fortasse lapidem calaminarem, aut plumbum, cum ferri minera mixtum continet.” *Geoff.* i. 124. When *Cramer* favours us with a more full account of the vitriols, as he promises (ii. 295), he may perhaps clear up this subject more fully.

“The colour of white vitriol is at length found to be owing to a mixture of zink in it.” *Hill. M. M.* 136. “Pure zink may at any time be separated from it by any one, who knows the necessary precautions of the adding a phlogiston, and working in close vessels, when that substance is to be procured.” *Ibid.* p. 137. I wish he had given his author, or the process. He says the white makes better ink than the green vitriol. Vide *Macq. Chem. prat.* i. p. 385.

“Album vitriolum Gossariæ, singulari minera saturnina (quæ bleyerz dicitur, et præter plumbum copiosum, etiam zincum, cuprum, argentum, aurum, sulphur, lapidem calaminarem, et terram ochraceam continet) paratur, previa tostione præcipue generatum, et aqua extractum. . . . Præter acidum et aquam, ferrum, cuprum, zincum, plumbum, et terra quædam, qualem  
“ in

“ in alumine deprehendimus, mixtionem ejus ingrediuntur. . . . Zinci et  
 “ plumbi præſentia difficilius demonſtratur; ex quibuſdam nihilominus ex-  
 “ perimentis quodammodo innotefcit. Aquoſa v. g. ejus ſolutio, inſtar ſacchari  
 “ ſaturni, ſaporem ex dulci auſterum linguæ imprimit; et caput mortuum  
 “ ejus cum cupro tractatum, metalli ſtavi ſpeciem, orichalco haud diſſimilem  
 “ producit.” Vide *Newman. Præleſſion. Chem.* p. 1823. *Cartkeuſer. M. M.* i.  
 p. 410. See alſo *New Diſpenſatory*, p. 226 & 357.

Certain, however, it is, that white vitriol has a chalybeat taſte, turns an in-  
 fuſion of galls to ink, gives iron a copper colour; that its ſolution is whiter  
 than that of the green, and precipitates much leſs oker, and that of a paler  
 colour; and that it is found in mines, and ſometimes in a cryſtalline form, at  
*Goflar in Germany*; and according to Dr. *Brown* at *Chemnitz in Hungary*. Vide  
*Harris's Coll.* ii. p. 515. Its oker alſo, calcined, turns red like colcothar or  
 crocus martis, and contains iron. So though zink is probably in it, it cannot  
 be called a vitriol of zink; but, in my opinion, zink may be called its baſis, as  
*Macquer* makes it, *Chym. prat.* i. 20. for, from experiments it appears, that  
 there is in it, beſides iron, a ſmall proportion of copper, and probably a great  
 deal of zink.

“ Vitrioli ferri ꝑiv. contain aquæ ꝑij. ferri & acidi aa ꝑj: vitrioli cærul. ꝑiv.  
 “ by ſolution, precipitation and fuſion, yielded cupri ꝑvij. gr. xij; vitrioli è  
 “ viridi cæruleſcentis ꝑiv. gave of copper only gr. xxxij.” Vide *Geoff. jun.*  
*Mem. Acad.* 1728. p. 425. At another time, from ꝑiv. of blue vitriol, he got  
 only ꝑvij. cupri. He ſays alſo, that blue vitriol at Paris is worth 150 livres  
 per cent. whereas 100 lb. green vitriol coſts but ſeven livres. There is cer-  
 tainly iron in the white vitriol, but in what proportion I know not; and though  
 it contains copper, it muſt be but very little. As for vitriolum rubrum, perhaps  
 it is only the green calcined *natura vel arte*. “ Quædam præterea vitrioli  
 “ rubri mentionem faciunt, ſed quidnam ſit iſtud vitriolum non novi.” *Geoff.*  
 i. 125.

Aquæ ꝑij. diſſolve vitrioli viridis ꝑj. According to *Boerhaave*, “ aquæ  
 “ ꝑij. diu conquaſſatæ ſolverunt vitrioli communis viridis ꝑiſſ.” *Chem.* i. 576.  
 According to Dr. *Grew*, aquæ ꝑij. diſſolve vitrioli viridis ꝑj. ꝑj. — I found  
 that aquæ ꝑij. diſſolved (in December) vitrioli viridis ꝑvj. gr. xxxvij. but the  
 age, or rather moiſture and dryneſs of it, make a conſiderable difference.  
 Thus (in March 1746) I found aquæ fontanæ ꝑij. diſſolved of old dry ruſty  
 copperas ꝑv. gr. liij; and of recent clear and very green copperas ꝑvij. gr. xix.  
 that is, near  $\frac{1}{4}$  part more.

“ Chalcanthum, quoniam vitri modo pelluceat, Itali vitriolum nominant.”  
*Math.* 940. “ Nomen videtur componi ex vitro et oleo. Solidum enim dum  
 “ eſt vitriolum, inſtar vitri pellucet; ad ignem vero fuſum in oleoſum quaſi  
 “ abit ſubſtantiam. *Iſaacus Hollandus* et alii volunt hanc vocem eſſe fictam,  
 “ et componi ex literis initialibus harum vocum, *Vade: In terram rimando*  
 “ *invenies optimum lapidem veram medicinam.*” *Boerb. Præleſſ. Chem. M. S.*  
*Lemery* has it, *Viſitatis interiora terræ reſtiſcando, invenies optimum (occultum)*  
*lapidem veram medicinam*, in his *Diſt.* p. 576. and *Chym.* p. 488.



## S E C T. II.

The green vitriol differs in nothing from the *sal martis*; nor does the blue from the *vitriolum veneris*; and the white is much of the same nature with the green. They are all styptic and emetic; and more used in substance outwardly, as drying and almost escharotic astringents, than inwardly; the white only being sometimes given as a vomit.

“ Vitrioli (subviridis) usus tantopere fructuosus existit, ut *Paracelso* (in naturalibus) ac *Phædroni* tertia pars medicinæ habeatur; imo totam officinam in eo latitare perhibet *Quercetanus* in tetrad. *Galeno* calfacit, siccatur, adstringit vehementer, constipat, vomitum ciatur, lumbricos fugat. Extrinsecus errhinum exhibet naribus induratum. Præparationes sunt purificatio, calcinatio, distillatio, sublimatio, præcipitatio, salificatio & extractio.” *Schrod.* 486 ad 500.

What has been said of the metals iron and copper sufficiently explains the nature of the vitriols; as the virtues attributed to the vitriols confirm what was said of those metals. What is in the composition of the white vitriol, besides the *acidum sulphuris æs* and iron, I know not; neither whether there is any thing in the native vitriols except the above metals and acid: but their evident effects are much the same as if there were nothing. However, I would prefer, for internal use, the *sal martis* to the *vitriolum viride*, because we are more certain of its constituent principles.—They all coagulate the blood, kill insects, contract, dry, cicatrize, almost corrode (the green certainly does so), stop bleeding, repel, provoke vomiting. The chalybeate vitriols dye the *fæces* black; and all leave a lasting mineral taste in the mouth behind them. I once took a white vitriol vomit, but it did not operate otherways than making me spit plentifully all that day: I also took vitrioli *cærulei* ʒss. by a lady doctor's advice, as an emetic at another time, and forced vomiting with warm water; yet the nauseous brassy taste continued to be troublesome for several days. I knew no good either of them did me: yet I knew an inveterate vomiting of blood cured twice by the *sal vitrioli*, taken as an emetic. “ Vitrioli solutio *Heliotropii* tincturam leviter purpuream efficit, lac cogit, syrupum violarum colore subviridi inficit, sublimati corrosivi solutionem non mutat; cum solutione *salis tartari* aut cum aqua calcis infusa, colore subfulvo vel thalassino tingitur; gallarum infusioni colorem nigrum, seu atra-purpureum conciliat, quod quidem vitrioli proprium est.” *Geoff.* i. p. 127.

A strong solution of common copperas turns the tincture as well as the syrup of violets, to a dark brown colour and opaque; makes the aqua calcis yellow and clotty, and precipitates a pale oker-coloured sediment in plenty, leaving the upper part clear, and of an orange yellow: mixed in equal parts with *oleum tartari*, it coagulates into a dirty dark-grey mud; diluted and mixed with the ol. it precipitates a black sediment, and is wheyish above.

“ Vitriola quoque venerem excitant: dedi homini, scopo alio, manequæ uxor questum veniebat, se esse lassatam a marito, et me ludi gratia illud fecisse putabat. Omnes aquæ vitriolicæ ex fontibus sunt saluberrimæ, si tamen solutionem vitrioli affundas sanguini, illum coagulat; ergo cogito vitriolum non venire ad sanguinem, sed manere in intestinis. Aperui quoque homines,

“ homines, qui his aquis sepe usi fuerant, eorumque intestina inveni nigra  
 “ ac si atramentum bibissent. Judico itaque vitriolum præcipitari & alii sal  
 “ admisceri, cum quo possit coagulare, cum succi nostri sint alcalinæ naturæ,  
 “ ergo illi coarct, relinquunt metallum in intestinis, et sit turrus vitriolatus,  
 “ sed valde volatilis.” Thus *Albinus* in *M. S.* “ It is usually observed in  
 “ martial waters, such as those of *Tunbridge*, the *Spa*, &c. that the fæces al-  
 “ vinæ are blackened by their metalline parts; but in *Tunbridge* waters par-  
 “ ticularly I have observed, that after the drinking of large doses of them, the  
 “ root of the tongue would also acquire a dark colour.” *Boyle of Mineral Waters*,  
 vol. iv. p. 238.

## S E C T. III.

The green vitriol may be given to gr. viij. or x; the blue to gr. vj. or vij;  
 the white, or its salt, as an emetic, to ʒj. though ʒss. may suffice. Vitrioli  
 albi ʒss. dissolved in aquæ rosarum ʒiv. and filtered, makes an excellent col-  
 lyrium for sore eyes.—Præpar. The vitriolum album gives the sal; the vi-  
 triolum viride the vitriolum calcinatum, colcothar, spiritus (unde sal et terra  
 dulcis); and of the blue vitriol the ens veneris is made.

1. *Sal vitrioli, gilla vitrioli offic.* is white vitriol dissolved in water and cry-  
 stallized into a pure pellucid white salt. Some take the phlegma vitrioli instead  
 of water. The *New Lond. Pharm.* adds olei vitrioli ʒj. to water in which  
 vitrioli albi is dissolved.—“ The spirit of vitriol improves the shooting of the  
 “ salt.” *Pembert. Disp.* p. 194.—“ It is a very gentle emetic; the dose is from  
 “ gr. xij. to ʒj. The patient sometimes discharges fæces black as ink after  
 “ this vomit.” *Lem. Chym.* p. 490.—“ A ʒj. ad ʒj. vomitum movet: max-  
 “ imi fuit usus, antequam nota fuissent emetica antimoniatæ & ipecacuanha;  
 “ nunc vero fere obsolevit.” *Geoff. i.* p. 129.

2. *Vitriolum calcinatum offic.* is green vitriol freed from a great part of its  
 water, and turned to a white mass by calcining it in earthen vessels. If the  
 heat be continued to a sufficient degree, it turns red, and is the colcothar *offic.*  
 It is strongly styptic; and is used to stop bleeding. It is taken instead of the  
 chalcitis in the theriaca.—The vitriol calcined to whiteness, loses about one  
 half of its weight; to a colcothar, about  $\frac{2}{3}$ . Vide *Lem. Chym.* p. 491.

3. *Spiritus & oleum vitrioli offic.* are the acidum vagum more or less diluted,  
 separated from vitriol, by the force of fire in distillation. The vitriol is first  
 calcined to whiteness, or till it becomes of an orange yellow; and some parts,  
 which touch the sides of the vessel, begin to be red. Vide *Macq. El. Chym.*  
*prat.* i. p. 23. It requires a fire of the greatest violence, and four or five days  
 continuance to fit it for distillation; yet even then some phlegm remains, and  
 rises before the acid, which (according to *Lemery*) is not all drawn off in less  
 than three days and three nights.

“ Of English vitriol lb viij. dried white, may yield phlegmatis ʒxij.—  
 “ Spiritus sulphurei ʒiv.—Spiritus acidi cum oleo ʒxxiv.—and Cap. mort.  
 “ lbv. ʒviij. which is a colcothar; from whence may be got sal. fix. vitr.  
 “ lbivss. there remaining undissolved lbj. which, when well washed, is called  
 “ terra dulcis vitrioli, and sometimes sulphur vitrioli dulce. If one half of the  
 “ spiritus



“ spiritus acidi and olei be distilled off in a sand-heat, there will be spiritus  $\text{℥xij}$ .  
 “ and remaining in the cucurbit olei  $\text{℥xij}$ . This oil sometimes turns to a solid  
 “ and most caustic salt.” Vide *Lem. Chym.* 495, 517.

According to *Boerhaave*, vitrioli viridis Goselatici  $\text{℔vii}$ . calcined to whiteness, or until it become yellowish, are reduced to  $\text{℔v}$ ; whence he commonly had olei atri, crassi, fortis, fumantis  $\text{℥xxj}$ . and of calx or colcothar remaining  $\text{℥lij}$ . unde, says he,  $\text{℥v}$ . diffatæ fuerint (though *Lemery* lost nothing); but, *N. B.*  $\text{℥}21 + 52 + 5 = 78$ . want  $\text{℥}2$  of 80 (or  $\text{℔v}$ .), so that vij ounces were lost in this process. “ Si autem oleum hoc, cucurbitæ vitreæ inditum, urgentur igne arenæ, tum demittit de se spiritum suum sylvestrem suffocantem, & aquam. Tum ex nigro factum est limpidum ponderosissimum, igneum. . . . “ Aquam trahit ex aere, instar magnetis.” Vide *B. Chem.* ii. p. 499, 502. He finished the operation in eighteen hours.

“ Vitriolum calcinatum in vasis terreis, igne reverberii per triduum distilla: liquore stillatio, retortæ vitreæ indito, et calore arenæ distillato, ascendit spiritus tenuis; et in retorta remanebit sp. fortis, qui vulgo oleum vitrioli, quamvis impropria, dicitur. Quod restat in vasis terreis, post primam distillationem, colcothar vitrioli vocatur.” *Pharm. Lond. Ed.* 1745. “ The practical rule in the rectification is to distil till the liquor in the retort, which at first is considerably black (from the remaining sulphur, according to *Macquer*), becomes quite clear.” Vide *Pemb. Dispens.* p. 191.

*Spiritus vitrioli dulcis offic.* is olei vitrioli p. i. and spirit. vin. p. viii. united by digestion and distillation. In the former two editions of our *Pharmacop.* we took sp. vitrioli p. i. and sp. vini p. iii. In the last *Lond. Ph.* it is made of ol. vitrioli  $\text{℔i}$ . and a pint of rectified spirit of wine.

“ Dulcior fit hic spiritus digestionem cum sp. vini. r.” *Geoff.* i. p. 130. Is distillation necessary? Is not spiritus vini quadruplum rather too little than too much for ol. vitrioli p. i.? Certainly it is so, if  $\frac{1}{4}$  of the oil remain united to the spirit. Vide *Lewis's* note on this preparation, *Ph. Edinb.* p. 288. *Boerhaave* takes only ol. vitrioli  $\text{℥j}$ . for spirit. vini  $\text{℥viii}$ . (on mixing of which he says, “ Spirabit liquor mistus suavissimam abrotani fragrantiam, sed suffocantissimam”); from which, after digestion in a close vessel for five days, he gets by distillation, besides the sp. dulcis, two other very different liquors. “ Ita quidem ut hac arte triplex distinctissimus liquor de hac miscela prodeat, et gignatur suffocans sulphureus vapor, remaneat fæx fixa prorsus singularis indolis.” See his *Process.* 161. p. 436. and *Macq. Elem. de Chym.* p. 204.

This sp. vitrioli dulcis, no doubt, agrees in many things with the other mineral dulcified spirits: what specific virtues it has I know not; but of all acids, that of vitriol being the heaviest and strongest, I think it ought most cautiously to be used (v. de sale Polychresto dicta), well diluted, and taken only ad gratam aciditatem.

*Lemery* only digests for three days, in a small sand-heat, ol. vitriol. p. i. and sp. vini p. ii. and says the spirit may be augmented or diminished according as it is desired more or less acid. “ It is aperitive and diuretic, proper for the stone, to purify the blood, to stop vomiting and the flux; some give it for hæmoptoes, bleeding at the nose, and the asthma. Dose a gut. iv. ad x. or to an agreeable acidity in any proper liquid.” *Lem. Chym.* p. 502. “ Spiritus vitrioli, sicuti cæteri spiritus acidi, humores æstuantem compescit, hæmor-

“ hæmorrhagias sistit, et urinas movet. Febres intermittentes sæpius sedat,  
 “ ineunte paroxysmo in aquæ tyatho ad gratam aciditatem exhibitus.” *Geoff.*  
 i. p. 130.

Dr. Stevenson has a good opinion of sal vol. C. C. in agues; but if I were to give either this or the sp. vitriol. d. in this disease, I would give both; that is, the one saturated with the other.

“ Intelligimus aquam mire latere in salibus, tandemque inde extricari posse.  
 “ Nam spiritus acidus nitri habet 60 partes aquæ, ad partes 19 veri acidi.  
 “ Spiritus salis habet aquæ partes 52 ad acidi partes 13. Oleum vitrioli aquæ  
 “ partes 60 ad acidi 37. Tumque ponuntur liquida hæc acida omnium me-  
 “ racissima. Aqua ergo hæc latuerat in decrepitato sale marino.” *B. Chem.* ii.  
 p. 418. — Might not this water be attracted from the air?

For the best manner of preparing the sp. vitrioli dulcis, as also of the æther, or æthereal spirit of wine, I refer you to the *New Dispens.* p. 296—298. or rather to *Macquer's Chym. Prat.* i. p. 218.—241. And shall only observe, that this æther is more light, volatile and inflammable, than any rectified spirit of wine; rapidly dissolves oils and oily substances; does not mix with water; and if mixed with a solution of gold in aqua regia, and shaken well with it, attracts the gold from the acid spirit and keeps it still dissolved. Vide *Macq. Chym. Théor.* p. 150.

*Tartarus Vitriolatus offic.* is the ol. vitrioli saturated with the ol. tartari per deliquium, diluted with hot water, filtered and crystallized. As the ol. vitrioli may be saturated with any fixed alkali, so also by precipitating a solution of common green vitriol with it, a tartar vitriolated may be got, every way as good, and at less expence. Vide *B. Chem.* ii. p. 417. No. 2. and *Pharm. Lond.* p. 47.

“ Virtus hujus salis habetur mire attenuans, si dilutus bibitur, atque deinde  
 “ exercitatione corporis juvatur; tum quippe attenuando, putredini resistendo,  
 “ stimulando, ita liberat ab infarctis viscera impedita, ut nomen acceperit  
 “ digestivi universalis: *Tachenio* vitriolum non metallicum audit.” *B. Chem.*  
 ii. 418. I would expect more from a salt prepared from vitriol precipitated with a volatile alkali. Vide *B. Chem.* ii. *Process.* 148. No. 3.

As for the *sal vitrioli volatile*, or *sal sedativum Hombergii*, sublimed from borax and sal vitrioli fixum, or ol. vitrioli, it seems to have nothing of vitriol in it, and is not in use here. Vide *Lem. Chym.* 505. and *Geoff.* i. p. 131. or *New Dispens.* p. 293. It may be prepared by crystallization as well as sublimation, and by various acids. Vide *Macquer's Chym. Prat.* i. p. 115.

## L E C T U R E XXIX.

### OF MINERAL SULPHURS.

#### S E C T. I.

“ **O**MNE quod est inflammabile, generali termino, a chemicis vocatur  
 “ Sulphur. Tale datur in regno minerali, semper acido vago mixtum.  
 “ Cæteroquin inflammabile purum, minerale, a vegetabili, ac animali haud  
 Vol. I. E e “ videtur



“ videtur discrepare, nec nisi unicum dari in rerum naturæ: ut hinc totum,  
 “ quod varia inter sulphura datur, discrimen, solummodo in diversa cum  
 “ heterogeneis mixtione consistat. Quum igitur inflammabile vix supeditet  
 “ natura purum; hinc de variis sulphureorum speciebus, utpote semper  
 “ mixtis, hic agendi locus non est: non enim nisi simpliciora, nunc comme-  
 “ morare, institui nostri ratio exigit.” *Cramer* i. p. 11. — Vide etiam *Geoff.* i.  
 p. 12—24. “ Sulphur, ait, seu oleum, generice sumptum, ignis, aquæ, terræ  
 “ & salis est concretio in corpus fluidum.”

## S U L P H U R.

## S E C T. II.

Sulphur, sulphur factitium, *off.* Sulphur factitium, *Worm. Mus.* 26. Sulphur factitium, *Agric. Foss.* 593. Sulphur factitium, *Aldrovand. Mus. Metal.* 364. *Charl. Foss.* 12. *Dale* 22. Brimstone, — is a solid, heavy, friable, mineral sulphur, of a citrine or greenish yellow shining colour, insipid, or of a somewhat earthy and mineral taste, and of a strong disagreeable smell.

“ Sulphur vulgare si ab omni alieno liberum est, solidam, friabilem habet  
 “ consistentiam, colorem flavum, in majores moleculas concretum plus mi-  
 “ nus semi-diaphanum apparet; igne flagrat, & flammam cæruleam, cum  
 “ suffocante vapore acido, eructans totum consumitur; parvo calore, vel  
 “ vasis clausis, liquefcit absque inflammatione; liquatumque mutat colorem  
 “ suum in rubrum pellucidum, simul ac iterum retrixit, solidescens denuo &  
 “ flavesceus. Compositum est ex principio inflammabili, purissimo, & copia  
 “ longe majore acidi chalcanti; unde oleo puro longe gravius factum, in  
 “ aqua fluidum petit. Analysis chymica, sulphurisque veri per artem ex duo-  
 “ bus modo memoratis principiis productio, dicta confirmant. In hoc statu  
 “ sulphur effoditur ex terra nativum; licet haud adeo frequenter. . . . Quoties  
 “ aurantio vel rubro colore, pellucido vel opaco, tinctum est, semper nota-  
 “ tur arsenici in eo præsentia: ut adeo sulphura sic colorata haud sincera sunt,  
 “ nec tantopere æstimanda.” *Cramer* i. p. 184.

“ Purum sulphur sublimatum, semper pulchrum, flavum, citrino paulo in-  
 “ tensiorem colorem habet: sed rubentius si est arsenicum cum eo sublimatum  
 “ esse indicatur.” *Cramer* ii. 253. “ Vulgare a colore imprimis mali medici  
 “ laudatur, citrinum dictum.” *Boerb. Chem.* i. 47. *Lemery Dist.* 527. *Savary*  
*Dist.* ii. 1593. *Geoff.* i. 174. All prefer the golden-coloured sulphur to the  
 greenish yellow.

Brimstone is either native or factitious.

1. Sulphur nativum, sulphur vivum, & apyrotium, *off.* Sulphur viv. is found either pure or compleatly formed in the earth, of the colour and consistence of the common brimstone, or more impure, mixed with earth or other minerals; of a light-grey, yellow, or other colour; as in *Sicily, Italy, Switzerland*, about volcanoes, &c. and in both the Indies. A pure sulphur sublimes also from some hot springs, as at *Aix, Bada*, &c. “ Sulphur vivum est vel  
 “ pellucidum flavum instar succini, aut rubini instar rubens pellucidum, quod  
 “ sulphur auri vocant; vel non pellucidum, flavum, aut coloris cinericei, aut

“ variis mistum, tumque vivum, sive sulphur virgo vocatur.” *Boerb. Chem. i. 46.* “ Per aquas etiam, præsertim sic dictas medicatas, tale advehitur & “ parietibus fontium sese applicat.” *Cramer i. 184.* From these native sulphurs by fusion, distillation, or sublimation, may the common sulphur be extracted or refined. But,

2. Sulphur commune or factitium *eff.* is said to be all got from the pyrites flavus, which contains  $\frac{1}{4}$  and sometimes  $\frac{1}{3}$  of brimstone, and also a large quantity of iron, sometimes more sometimes less than it does of sulphur. “ Omne “ id quod venale per Europam, habetur, ex lapide pyrite dicto producitur “ arte, in eodem prius vix præfens, quum matrix ejus igne acta, non sulphur, “ sed acidum liquorem exhalat, acido chalcanti simile.” *Boerb. Chem. i. 47.* “ Pyrites flavus ferreus, præprimis illa est minera, ex qua omne fere sulphur “ minerale vulgare obtinetur.” *Cramer ii. 252.* For sulphur ex pyrite, aliiſque mineralibus; sulphuris distillatio; sulphuris crudi rectificatio, & in flores sublimatio, see *Cramer ii. Process 67 & 68.* Vide & *Matth. p. 947. Worm. 26.* Huile de baleine (whale-oil) is used in refining sulphur, according to *Pomet.* Vide *Savary Dict. ii. p. 1593.* Oleum lini, according to *Geoff. i. 174.* but neither of these are mentioned by *Cramer.*

Sulphur, as it is in *Celsus* and *Pliny*, or sulphur as *Ovid*, *Virgil*, *Horace*, have it, is in Greek  $\theta\epsilon\iota\omicron\nu$ . Sulphur vivum,  $\theta\epsilon\iota\omicron\nu \acute{\alpha}\pi\upsilon\rho\omicron\nu$ ; sulphur ignem expertum,  $\theta\epsilon\iota\omicron\nu \pi\epsilon\pi\upsilon\rho\omega\mu\epsilon\nu\omicron\nu$ . *Dioscorides* (l. v. c. 123. p. 374.) says, Gignitur in Melo & Lipara.—“ Sed nobilissimum in Melo insula.” *Plin. l. 35. c. 15. p. 852.* —“ The sulphur of Melo is perfectly fine, and is a little greenish and shining. “ It is found there in large pieces in digging the earth; and in thick veins in “ millstone-quarries; Melo then is as if it were a natural laboratory, where “ are continually prepared the spirit of salt, of alum, of sulphur, &c.” *Tournef. Voyage i. p. 61. vide p. 60—64.* “ Sulphur Græcis  $\theta\epsilon\iota\omicron\nu$ , forsan quod in ex- “ piationibus sacrisque vetustatis, olim ejus usus extiterit.” *Worm. l. c.* “ Credo facile  $\theta\epsilon\iota\omicron\nu$  divinum esse dictum, quod odorem habeat fulgoris.” *Vide Hoffman 535.* Quia Hippocrates quorumcunque morborum virus occultum, nuncupabat divinum in morbis quoque per sulphur virus pestilens “ sanaret, coepit ideo vocare sulphur  $\tau\omicron \theta\epsilon\iota\omicron\nu$ .” *Helmont. Tum. Pest. p. 269.* Some derive sulphur from  $\sigma\alpha\lambda$  and  $\pi\upsilon\rho$ ; others from solum and  $\pi\upsilon\rho$ . “ Apy- “ rothium, ex a privativo, &  $\pi\upsilon\rho$  ignis, because sulphur is *l'element du feu.*” *Lemery Dict. p. 526.*

“ There is in *Misnia*, near *Freiberg*, a rich sulphur-ore hard and stony; the “ best has red spots. Some of it yields sulphur, *libij. per cent.* It is melted “ in a peculiar furnace, to separate it from the ore, which as it melteth runs “ out of the furnace into water; or the exhalations of the ore are condensed “ into brimstone, by the coldness of the surface of the water, placed to receive “ it. It is purified again by melting it once more. Some of this brimstone- “ ore holds silver, some copper, but in small quantities. The remnants are “ reserved, either for the melting of silver or the making of vitriol.” *Dr. Brown. Harris Coll. ii. 536.*



## S E C T. III.

Brimstone is antiseptic (*i. e.* corrects bilious, rancid alkaline and putrid acrimony) diaphoretic and laxative, called pectoral. Internally it is recommended in coughs, asthma, internal ulcers, hæmorrhoids, malignant fevers, too violent mercurial salivations, &c. Outwardly applied it repels, dries, heals diseases of the skin; and may be called a specific for the itch, if properly used internally and externally.

“ Calidum & siccum est, pectori dicatum; aperit, incidit; putredini, veneno, venenatorumque animalium moribus resistit; provocat sudorem, &c.  
 “ Hinc conducit in phthisis, tussi, asthmate, peste, pestilentialibusque febribus. Extrinsecus discutit tumores duros, sanat lichenes duros, pruritus, &c.  
 “ Fumus epilepticos excitat & hystericos. *Præp.* Sublimatio, præcipitatio, distillatio, infusio, & liquatio.” *Schroder. p. 503—511.*

1. That pure brimstone consists of nothing but the acid of vitriol, and an inflammable substance, or phlogiston, is demonstrable both by its chymical analysis, and artificial production: but in what proportion they are mixed, is not so certain. Probably it contains much more acid than phlogiston. *Vide Cramer ii. p. 262.* where, after directing how this may be determined, he adds, “ Deprehenditur sic acidum decuplo & quintuplo pondus phlogisti circiter superare demonstrante” *Cl. Stablio*, but shews the quantity of the acid is here too large. See there also one way of producing a true brimstone from the acid of vitriol, and any phlogiston whatever, *p. 265. (Methodus est Stablianæ.)*—According to Mr. *Homberg*, sulphur is composed of equal quantities of acid, phlogiston and earth; so that *florum sulphuris p. iij.* contain *acidi, phlogisti & terræ æa p. i.* But the process of the *hepar sulphuris* sufficiently proves the contrary. *Vide Homberg's Analysis, Mem. Acad. 1703. p. 36. and Geoff. i. p. 175.* who is of this opinion.

“ In sulphuris *libj.* teste *Newmanno*, nondum phlogisti *zj.* reperiuntur, & tota pars reliqua, ultra *3xv. & 3vj.* pondere ascendens, sal acidum ponderosissimum est.” *Cartheuser ii. p. 611.* that is not a 64th part of brimstone is inflammable: scarce credible! Yet, notwithstanding this great quantity of acid,

2. Sulphur flames with a smaller degree of heat than will kindle any oil, or even spirit of wine, in the free air: but in close vessels no heat can burn it or separate its principles: and however often sublimed it is the same sulphur still. “ Quotiescunque enim sublimaveris iterato, semper manet idem, nec mutatur nec fixatur. Quamdiu apertus aer non admittitur, manet ab igne immutatum simul ac vero liber aer accedit, ilico tum flammam capit, statimque deinde mutatur, dividitur in partes.” *Boerb. Chem. ii. p. 421.*

“ Sulphur quotiescunque rectificetur & sublimetur immutationem non patitur essentialem, sed igne clauso, incorruptibile persistit: si vero oleosa, pingua, alcalina, &c. accedunt ejus textura tollitur. Aeris autem liberior & ignis actiones concurrentes id destruunt: tum aperte igne, inflammabilis pars accenditur, consumitur; hinc pars acida salina, iterum liberata, per ardens phlogiston in fumum resolvitur suffocantissimum, iterumque avide appetit aquam, quam in conjunctione cum phlogisto, penitus respuebat:

“ unde

“ unde & mediante aqua vel cujus vapore, optime tum colligi illud acidum  
 “ potest, cum per se plane non dispositum sit, ut in guttulas coeat majores,  
 “ & vasorum parietibus sese applicet. Hic sulphuris accensi fumus acidus per  
 “ campanam, vel alembicum colligi solet, & vocatur spiritus sulphuris per  
 “ campanam.” *Cramer* ii. 260.

3. It is not dissolvable in either inflammable or acid spirits; but in oils, alkalies, fixed or volatile, and in calx viva it is dissolvable, (vide *hepar sulphuris infra*) and that even partly in water. Hence a mineral sapo may be made of it. Hence also it is antacaline and antiseptic.

4. It prevents the fretting and spoiling of wine. Vide *Savary Dict.* ii. 1593.

“ Homo quidam, custodi angelo endæmoni familiaris, oravit ut a Deo  
 “ impetraret remedium, per quod Hippocrates Græcorum pestem popularem  
 “ curavit; sperans miseris Christianis non denegatum iri, quod gentilibus  
 “ olim concessit omnipotens. Dixit endæmon: Hippocrates usus est sulphure  
 “ sale & pice. . . Solum autem sulphur inter creata corpora resistit fracedini &  
 “ pestis contagio. Quia solum sulphur, instar ignis, omnem fracedinem,  
 “ tam in doliis quam locis ipsis arcet, deletque cujusvis attractus, & odoris  
 “ vestigia.” *Helmont. Hippocrat. redeviv.* p. 269. I need not mention the effect of burning brimstone on wool and silk; the colour its flame gives peoples faces; (vide *Plin.* l. 35. c. 15. p. 852); a stick of it cooling water only once; (vide *Lemery's Dict.* 527); or its electricity; because none of these illustrate its virtues. But must observe,

5. That externally it not only dries and heals; but also appears, by the bad consequences of its imprudent and injudicious application, to be a stronger expellent even than alum or vitriol. There is not, perhaps, a more effectual remedy for several diseases of the skin, particularly infectious itches, than brimstone: but if proper evacuations be not first used, and the patient then take it inwardly, and be kept warm for some time after the outward application, there is great room to fear a dangerous metastasis of the peccant humor. This the *New Dispensatory* has the honour, I believe, to be the first that ever denied it. “ This opinion has no just foundation; sulphur has nearly the same effects, whether used externally or internally: in both cases the eruptions become frequently more copious, after the first use of it.” p. 215. For,

6. However difficult the analysis and solution of sulphur may be, yet it yields to the vis vitæ, is very penetrating, and enters the habitus corporis inwardly taken; as appears from the smell it gives to the materia perspirabilis, as well as the fæces of such as use it in small quantities. In larger doses it purges, and sometimes with nausea or sickness, especially in weak constitutions; for the more acrid the bile is, and the stronger the viscera, the more of it will be dissolved, and fitted to enter the lacteals, and so prove diaphoretic. Hence it rather cools than heats.—“ Sulphur intus sumptum, alvum laxat, & insensibilem perspirationem promovet. Hæc sulphuris per cutis poros transpiratio facile percipitur, ex odore sulphureo quem exhalat corpora eorum qui sulphur sumpsērunt, & ex colore fusco vel nigro quo inquinatur argentum vel aurum quod gestant.” *Geoff.* i. 178.

“ Illud mirum est, ab usu sulphuris excrementa alvina *moschi* odorem re-  
 “ ferre, (they stink rather of the *hepar sulphuris*). . . Interne crudum pulve-  
 “ risatum, in brodio calido propinatum quantum cultelli cuspidē sumi potest,  
 “ tempore



“ tempore matutino, (I give it rather at bed-time) in scabie sicca senum, teste  
 “ experientia, valde utile est.” *Hoffman in Schröd. Magnet.* i. p. 335. *Hippocrates*  
 orders sulphur in several diseases. “ Si aqua ex uteris effluat  $\Sigma\epsilon\iota\upsilon\nu$  & anseri-  
 “ num adipem delingat.” *De Morbis Mul.* l. 2. p. 664. *lin.* 49. — “ Ubi  
 “ simul cum tussi strangularint uteri sandarachæ oboli pondus,  $\Sigma\epsilon\iota\varsigma \alpha\pi\upsilon\rho\varsigma$  tan-  
 “ tundem, & amygdalas amaras repurgatas tres vel quatuor commisceto & in  
 “ vino odorato exhibeto.” *Ibid.* p. 669. *lin.* 43. And in the same disease he  
 orders sandarachæ obolum,  $\Sigma\epsilon\iota\varsigma \alpha\pi\upsilon\rho\varsigma$  ob. ij, amygdalarum amar. & castorei  
 obolum to be given in vino odorato. *Ibid.* p. 671. *lin.* 1.

“ Sulphur vivum ( $\Sigma\epsilon\iota\upsilon\nu \alpha\pi\upsilon\rho\upsilon\nu$ ) calcacit, discutit, & maturat celeriter.  
 “ Tuffientibus, purulenta excreantibus & fufpiriosis prodest, tum in ovo  
 “ fumptum, tum etiam fuffitum: præterea partus ufti nidore extrahit.” *Dios-  
 corid.* l. 5. c. 124. Who also commends it for the icterus ( $\kappa\omicron\rho\upsilon\zeta\alpha$ , &  $\kappa\alpha\tau\alpha\rho\phi\omicron\varsigma$ )  
 gravedo & diffillationes, internally; and outwardly ad lepras, lichenas, scabros  
 ungues, vitiligines, podagras. “ Sudores, fanguinis eruptiones, contufas au-  
 “ res, pruritus; and fays also lethargicos fuffitu excitat.” — “ Si crudum hu-  
 “ mano ingeritur corpori, partita fed repetita crebro dofi, primas vias mire re-  
 “ purgat, tandem fatis valide, tumque morbos quofdam cutaneos, verminofos,  
 “ metallicos mercuriales, efficaciter fanat.” *Boerb. Chem.* ii. p. 419. “ Ex-  
 “ terne applicatum tumores duos discutit, bubones maturat ac digerit. Sca-  
 “ biem, pforam, lichenas, tum intus tum extus adhibitum fanat. Gravidis  
 “ tamen non convenit, ne abortum inferat.” *Geoff.* i. p. 178. — *Cartheuser*  
 thinks it does not enter the lacteals, and condemns its ufe externally fine ra-  
 tione. Vide *Fund. M. M.* p. 612. 3. vol. ii.

#### S E C T. IV.

Pure fulphur may be given to  $\mathfrak{z}\mathfrak{j}$ . at once. Though I would not exceed  
 $\mathfrak{z}\mathfrak{ss}$ . at first; but would increafe the dose as it operated, or answered the in-  
 tention. Flowers, balsam, hepar, and fpirit are prepared from it.

1. *Flos* or *Flores Sulphuris*, *offic.* is pure brimstone or fulphur purified by  
 fublimation, and reduced to an impalpable powder. Thus only fulphur is  
 taken inwardly: the dose whereof is to  $\mathfrak{z}\mathfrak{j}$ . *Schrodero*; to  $\mathfrak{z}\mathfrak{ss}$ . *Lemerio*, *Her-  
 manno*, *Albino*; ad scabiem *Geoffrey* orders  $\mathfrak{z}\mathfrak{j}$ . mane & vespere. As for puri-  
 fying brimstone by melting it with wax, or by boiling it in water, neither are  
 in ufe here.

“ Ex fulphuris  $\mathfrak{H}\mathfrak{j}$ . Florum  $\mathfrak{z}\mathfrak{iv}$ . colligi poffunt. Dosis a  $\mathfrak{ss}$ . to  $\mathfrak{z}\mathfrak{j}$ . Si sub-  
 “ limatio cum nitro fixo repetatur flores evadunt albi.” *Le Mort, Coll. Chym.*  
 p. 430. “ Dosis est  $\mathfrak{ss}$ .” *Marg.* *ibid.* “ If the fulphur be fine there will re-  
 “ main only a little light ufelefs earth.” *Lemery Chem.* p. 524. “ Salis poly-  
 “ chrest p. i. fulphuris p. ij. fublimed, give white flowers; and the refiduum  
 “ calcined, diffolved, fiftred and evaporated, gives the fal polychrest, as good  
 “ as ever.” *Ibid.* p. 525. “ Flos venalis fulphuris haud multo est fulphure  
 “ ipfo carior.” *Boerb. Chem.* ii. p. 421. “ The matter remaining after the  
 “ flowers have rifen, is a ponderous compact mafs, of a grey colour: it ap-  
 “ pears to be compofed of fand, earth, ftony and fometimes metallic mat-  
 “ ters, mixed with other impurities, and a fmall portion of fulphur that has  
 “ escaped

“ escaped the subliming heat; this is usually broke into pieces and vended  
 “ in the shops under the name of sulphur vivum.” *Lewis Dispensf.* p. 294.  
 and *New Dispensatory*, p. 309.

The *London Disp.* have also flores sulphuris loti, which are the flor. sulph. first boiled in water, and then washed in cold water and dried. “ There is  
 “ some degree of a rough acidity remains with the flowers of sulphur after their  
 “ sublimation, as may be perceived by the taste of this water, wherein they  
 “ are boiled, which fresh water will not receive from them, when they have  
 “ been duly washed. And this lotion improves them for internal use, by pre-  
 “ venting the gripings, which unwashed flowers of sulphur will sometimes occa-  
 “ sion.” *Pemb. Disp.* p. 209. I have been very sensible of this taste in some  
*London* flowers; but not tasting it in brimstone itself, I attributed it to some  
 error in the process, or fraud of the chymist. But I don’t see how this rough  
 acidity should occasion gripings, since a small quantity of alum does it not.  
 This washing however can do no harm if it does no good. Sulphuris lotio is  
 performed, by pouring boiling water on melted brimstone, continuing the de-  
 coction for  $\frac{1}{4}$  horæ, then decanting the water, adding more hot water, boiling  
 again, and repeating this fourteen times. *Vide Codex Med.* p. 2.

2. *Balsamum Sulphuris crassum, offic.* Balf. sulph. simplex, *Pharm. Lond.* is the  
 flowers of sulphur dissolved in, and intimately united with oil; which is done  
 by boiling them so long as they smell, or crackle, or until they quietly sub-  
 side, otherwise they separate when cold. We take florum p. i. ad ol. olivar.  
 vel lini p. iij. The *Londoners* florum p. i. & ol. olivarum p. iv. — Our college  
 still retains balsamum sulphuris anisatum, and terebinthinatum; both which  
 and four or five more are in the *Pharm. Bateana*. The *Old Lond. Disp.* had  
 none. The *New Pharmacopœia* has adopted one, and added quite a new one,  
 viz. balf. sulphuris barbadense. Of what consistence is it? The petroleum  
 barbadense is as thick as the common balsam of sulphur: And are its virtues  
 improved? *Vide infra*.—They are all much recommended by some, for inter-  
 nal ulcers, consumptions, &c. but others think them not proper in those cases.  
 Their virtues depend chiefly on the sulphur; though not solely. Their use for  
 the hæmorrhoids externally is seldom safe.

“ Hic ille decantatus est *Helmontii, Rulandi, & Boylei* balsamus sulphuris.  
 “ Hunc ad calefaciendum, emolliendum, resolvendum, externe adeo com-  
 “ mendant, ut nihil supra. Hunc interno ab usu laudant contra putrefactio-  
 “ nes, suppurationesque renum pulmonisque in primis. In hoc tandem pul-  
 “ monalis phthisios arcanum remedium, unicumque sufficiens, quærunt, inve-  
 “ nisse affirmant. Puto, pingui, acri, indigestibili, calido, nocere debili pul-  
 “ moni, ventriculo, visceribus; languidorum appetitum opprimere; sitim  
 “ augere; torrere nimis jam pridem exsiccata per phthisin corpuscula. Quæ  
 “ non temere effundo, sed explorata loquor meditatus: suadeo hinc parcum  
 “ prudentemque cum anxia effectus observatione usum: certe urenti non caret  
 “ rancedine. Externe, pallida, frigida, aquosa, mucosa, saniosa, manantia  
 “ ulcera, satis feliciter curans, fecit ut & similia interne præstari per illud  
 “ posse contendant, forte paulo præcipitantius: quia febriculum usus internus  
 “ excitat fovetque.” *Boerb. Chem.* ii. p. 429. *Vide etiam V. Swieten in Aphor.*  
 376. p. 638. ut & *Aph.* 390. p. 666. ac 422. p. 742. *de oleis ambustis acri-*  
*bis.*—“ Deprehendes circiter sulphuris p. i. requirere sedecies plus olei tere-  
 “ binthinæ,



“binthinæ, priusquam integre solutum sit.” *Boerb. Chem.* p. 431. In the following page of which is an account of its virtues.

3. *Hepar Sulphuris, offic.* is pure brimstone dissolved by a fixed salt (by melting them together over the fire), and stirred till the mass grows red. The *Ph. Edinb.* orders flor. sulphuris p. vi. salis tartari p. iii. *Boerhaave* flor. p. ix. salis fixi p. ii. “Sulphur cum subduplo alcali fixi fufum, abit in hepar sulphuris, quod, respectu salis alcalini quem continet, omnes terras lapidesque cito ad ignem diffuere facit; cum quibuscunque metallis fufum, hæc reddit cito fluentia, fragilia, nec metallo, nec semi-metallo amplius similia, solubilia in aqua: id quod tam generaliter obinet, ut ne quidem aurum vel argentum excipiat.” *Cramer.* i. p. 66. Vide quæ *id.* habet de sulphure ut menstruo, p. 62. 67.

“It appears directly from experiment that sulphur requires somewhat more than double its weight of fixed alkaline salt (though the purer and stronger sorts thereof be made choice of) to render it perfectly soluble in water, which this preparation ought to be when made in perfection. Vide *Lewis Pharm. Edinb.* 297. “Erit massa rubra, fragilissima in aqua solubilis, in aere cito diffuens.” *Boerb. Chem.* i. p. 425. Where for the magisterium or lac. sulphuris he orders flor. sulphuris 3j. salis tartari 3iij. as does Mr. *Lemery, Chym.* p. 525.—Vide *N. B. infra.*

It is a sapo and tartar vitriolated intimately united; and therefore is probably an attenuating, detergent, deobstruent, diaphoretic and diuretic medicine; not much inferior in virtues to the sulphur auratum antimonii, especially as a pectoral.

“Alcali fixum, igne actuosum, sulphuri fuso perintime mistum, extrahit inde acidum, sibi unit. Mox natura sulphuris resoluta in sua duo separata principia. Attamen oleum hic non manet seorsum, sed unitum intime salis alcalino & acido, ut ortus ita sit subito mirus sapo, acido, alcali, & oleo constans.” *Boerb. Chem.* ii. p. 425. He gives not the virtues of this; but in the following process, viz. sulphuris solutio in alcali volatili, he says, “An vero possideat tantas in medicando virtutes, maxime ad pectoris mala, ut princeps chemicus putabat, merito dubitamus.” *Ibid.* p. 426.

Lac sulphuris *offic.* is the hepar decocted in water, filtered and precipitated with spiritus vitrioli, washed and dried. The *Lond. Pharm.* boils flor. sulphuris p. i. & calc. viv. p. iij, filters, &c. as above. Our method is the most expeditious if the hepar be all soluble; the *London* the cheapest. If precipitated with sp. aceti, I would like it better. But what is it good for? “Dosis from gr. x. to 3j. It is reckoned more sudorific than the flowers, and is pretty often prescribed for that purpose.” *Quincy Disp.* p. 312.

Is it a sulphur regeneratum? No: it requires a great heat to reunite the acid of vitriol with the phlogiston. Is it the phlogiston separated from the acid? No; for it exceeds the quantity of the flores taken.

*N. B.* “If the magisterium vel lac sulphuris be precipitated with distilled vinegar, its weight will be a little less, when well washed and dried, than that of the flores sulphuris employed, because the acidity of vinegar is too weak to separate all the salt of tartar, and so some sulphur remains suspended in the liquor; but if an acid be used strong enough to remove and entirely destroy the salt of tartar, the magisterium dried will weigh more

“ than the flower of sulphur did, though accurately washed; and that at the  
 “ rate of  $\text{ʒiij.}$  in the ounce, which is owing to the union of the acid and al-  
 “ cali with the sulphur. . . . Of this powder  $\text{gr. xv.}$  have as much effect as  
 “ *florum sulphuris*  $\text{ʒj}$  for diseases of the breast, and do not heat so much.”  
 Thus *Lemery Chym.* p. 527. He takes for his magistery *florum sulphuris*  $\text{ʒiv.}$   
 and *salis tartari*  $\text{ʒxij.}$  and boils them in  $\text{lb vi.}$  or  $\text{vii.}$  of water for five or six  
 hours, till it is become red: which therefore, being precipitated with a strong  
 acid, will yield of magistery  $\text{ʒv.}$   $\text{ʒiv.}$  Is this increase of  $\text{ʒxij.}$  from the fixed  
 salt only, or (if *sp. vitrioli* was used) from a *tartarum vitriolatum*? Probably  
 from the fixed alcali, because the acid more strongly attracts it, than the phlo-  
 giston; and so weakens it as a menstruum, that it cannot keep the sulphur  
 suspended in the water: and thus the magistery is more soluble in water. But  
 why then is not all the fixed salt separated from the phlogiston? Perhaps a  
 certain quantity of it is so fixed in, or defended by the phlogiston, that the  
 acid cannot reach it. Yet still here is as much increase of weight, as is taken  
 of fixed alcali in *Pb. Edin.* for preparing the *hepar sulphuris*, which dissolves  
 in water. How comes it then that the magistery or *lac sulphuris*, is not so-  
 luble in water? Perhaps because our *hepar* is not compleat, and only part of  
 it dissolves: or perhaps some part of the *tartarum vitriolatum* still remains in  
 the *lac*. If the proportion which the different preparations of the magistery,  
*lac*, or *præcipitatum sulphuris*, bear to the flowers used, were carefully ob-  
 served; and the nature and quantity of the salt, remaining in the water, after  
 the precipitation, or carried off by the lotions, accurately examined, we might  
 with greater certainty determine to what this increase of weight is owing;  
 and also wherein this preparation differs from the *flores* in its virtues. In the  
 mean time I think it more than probable, that since the virtues of brimstone  
 can neither depend upon its phlogiston, nor on its acid separately, but on them  
 both intimately united, whatever destroys this union must also destroy its speci-  
 fic virtues, and entirely alter its nature.

“ This medicine is not different in quality, from pure sulphur itself. . . The  
 “ whiteness does not proceed from the sulphur having lost any of its parts, or  
 “ from any new matter superadded. . . For if the *lac* be melted, with a gentle  
 “ fire, it returns into yellow sulphur again.” *New Dispens.* p. 312.

4. *Oleum vel spiritus sulphuris per campanum, offic.* is the acid of brimstone  
 which flies off when the phlogiston is burning, and by attracting moisture from  
 the air is reduced to a fluid state. The process is described in every chymical  
 author: it is at best tedious, though several attempts have been made to shorten  
 it. (*Videantur Lemery Chym.* p. 535. *Cramer* ii. p. 260. *Medical Essays*, vol. v.  
*art.* 14. p. 183. *Lewis Pharm.* p. 294): and when the spirit is got it is no  
 better than *spiritus vitrioli*.

“ *Spiritus sulphuris* in febribus ardentibus malignis & pestilentialibus pro-  
 “ dest, sitim extinguit, humorum putredini resistit, sanguinis & bilis effe-  
 “ vescentiam sedat, non tantum sanguineam molem, ut cæteri acidi liquores  
 “ minerales, coagulando, sed solas sulphureas partes irretiendo. Nam ex  
 “ Borelli observatione oleum sulphuris in jugularem canis vivi venam in-  
 “ jectum fuit ad  $\text{ʒj.}$  aut alteram, salva ipsius vita; cum alter ab aquæ fortis,  
 “ licet aqua temperatæ ac debilitatæ infusione, miras convulsiones & spasmos  
 Vol. I. F f “ passus



“ passus vehementissime se contorquendo, mortuus fuerit, in cujus venis & corde sanguis in grumos condensatus repertus fuit.” *Geoff.* i. p. 181.

“ Having infused into the jugular vein and crural vein of a dog some aq. fortis diluted, the animal died presently. . . There was also infused into another dog some spirit of vitriol, which had not so present an effect; for the animal complained a great while, and foamed like epilepticks, and breathed thick. . . Which dying at last, his blood was found fixed in the veins, and grumous resembling foot. Then there was injected into a dog some oil of sulphur: but he died not of it, though this infusion was several times tried upon him. And the wound being closed . . . and the dog let go . . . he fell a gnawing of bones, with a strange avidity.” Thus *Sig. Fracassati Phil. Transact.* No. 27. (1667.) p. 490. Hence it seems to differ from spirit of vitriol. Yea, “ Longevitati producendæ aptum ait Helmontius.” *Boerb. Chem.* ii. p. 425. See *Van Helmont's Arbor vitæ* sub finem, p. 752. where there is an account of his advice to one *John Mass*, viz. to take sp. sulphuris gut. ij. in his first drink at every meal; and of its success, viz. he was aged 58 when he began to follow it, and at 99 was in good health. — Whatever is in these, it is certain that the acid of vitriol and brimstone is the same, by every experiment. And if Mr. *Lewis* is rightly informed, there can be no difference between ol. vitrioli and sulphuris, but in their strength. “ We have not been able, by any experiment whatsoever to distinguish a difference between the oil of sulphur and oil of vitriol, provided both liquors were of equal purity and strength. But this dispute will now perhaps be quickly at an end, for if we are rightly informed (and from our own experiments we are well assured of the possibility of the thing) almost all the oil of vitriol now sold, is prepared from the fumes of burning sulphur, caught by a more convenient apparatus than any commonly known.” *Lewis Pharm.* p. 296. Vide *New Dispens.* p. 286.—Now since by comparing *Lemery's* and *Boerhaave's* Processes for preparing the acid of vitriol, it appears that vitriol virid. ℔ viii. can yield but about ⅔x. of rectified oleum vitrioli, while sulphuris communis ℔ viii. contains at least ℔ v. or ⅔ 80. and according to *Stahl* ⅔ 120. of the acid in forma sicca, which is easily separated from the phlogiston; such as know how to collect it must make a good deal of profit by it; as it seems not to require a costly apparatus, long time, or great heat.

## AURIPIGMENTUM.

### S E C T. I.

Auripigmentum and arsenicum flavum, *offic.* Auripigmentum, *Matth.* 944. *Worm.* 28. *Agriccl. Foss.* l. 3. p. 592. A. luteum, *Aldrov. Mus. Met.* 353. Arsenicum croceum, *Charler. Fossil.* 12. Auripigmentum; *offic.* Dale 23. Orpiment, or native yellow arsenic,—is a heavy, scaly, shining sulphureous mineral, of a golden colour (but in some parts more greenish, in others reddish); of an acrid taste say *Agricola* and *Geoffroy*, but insipid say *Hoffman* and *Lewis*; and sulphureous smell when burning.

“ Auripigmentum etiam, minerale aurei coloris, hinc inde cinnabarini co-  
 “ loris moleculis stipatum, scissile, lamellatum, molle cum quadam tenaci-  
 “ tate splendens si frangitur: plurimum continet arsenici, minus sulphuris  
 “ mineralis; unde in igne obscure saltem ardet, flammam ex cæruleo albam,  
 “ cum densissimo albo fumo eructans. Id simul ac ardet, liquefit; lique-  
 “ factum supra nitidam tabulam ferream vel marmoream effusum, frigefac-  
 “ tum, abiit in corpus solidum, intense rubicundum, fragile, splendens, semi-  
 “ pellucidum: relinquitur tum tamen crama minus fluens, scorix imperfectæ  
 “ simile, quod magno igne exustum, dehiscit in terram. Effoditur in Hun-  
 “ garia & Oriente.” *Cramer*. i. p. 188.

“ It is in stones of different sizes and figures, always yellow, but mixed  
 “ with some other shadowings, as a golden yellow, reddish yellow and greenish  
 “ yellow; sometimes also it is almost red, which is the true sandarach of the  
 “ Greeks. It is commonly found in copper-mines. The druggists of Paris  
 “ get it from the English and Dutch.” *Vide Savary's Dict.* ii. 933.

From the difference of the colour Mr. *Geoffroy* makes three species of the  
 auripigmenta, and adds, “ Hæ species in auri & cupri venis reperiuntur.”  
*M. M.* i. 185. — “ Est substantia metallica (vel potius minera auri, ut vult  
 “ *M. Lister*) coloris ex viridi flavescens, cum aureis micis; saporis acris,  
 “ odorisque ingrati. In fodinis reperitur. *Turcis reusina* vel *chrisma* vocatur.”  
*Dale* 23. According to the *Sieur Carfueil* it comes from Marseilles and from  
 Venice, and is vended in the Levant. *Vide Savary's Dict.* iii. p. 535.

“ Aurum faciendi est etiam una ratio ex auripigmento, quod in Syria fodi-  
 “ tur pictoribus in summa tellure, auri colore, sed fragile lapidum specularium  
 “ modo. Invitaveratque spes *Caium*, principem avidissimum auri, quamobrem  
 “ iussit excoqui magnum pondus, & plane fecit aurum excellens, sed ita parvi  
 “ ponderis, ut detrimentum sentiret.” *Plin.* l. 33. c. 4. p. 794.

“ Aurum ab arsenico penetratum fit quam fragilissimum, color ejus detur-  
 “ patur; magnum in ignem subito tunc immisum pro parte sublimatur.”  
*Cramer*. i. 34. *Pliny* also mentions sandaracha and three genera arsenici,  
 which seem to be only varietates auripigmenti. (*Vide l.* 34. c. 18. p. 827),  
 or arsenici *Dioscoridis* (l. 5. c. 121. p. 372.)

2. Sandarachum Græcorum & arsenicum rubrum, *offic.* Sandarach, *Ma-  
 tthioli* 944. *Worm M.* 29. *Agricol. Foss.* l. 3. p. 592. Auripigmentum rubrum,  
*Aldrov. Mus. Met.* 353. Arsenicum rubrum, sandarach vulgo dictum, *Charl.  
 Foss.* 13. Arsenicum rubrum risigallum, sandarach Græcorum, *Mont. Exot.*  
 13. Arsenicum rubrum, sandarach Græcorum, *offic.* *Dale* 23. Realgar &  
 resagallum, *offic.* *σανδαράχη* Græcorum, realgar & resagal Arabum, *Geoff.* i.  
 187. Red arsenic.—This differs from orpiment in colour only.

“ Sandarach præfertur ad satietatem rufa, fragilis, friabilis, pura, & quæ  
 “ cinnabaris colorem imitatur, insuperque sulphuris virus redolet.” *Dioscorid.*  
 l. v. c. 122. p. 373. “ Realgal is calcined orpiment, of which there are two  
 “ species; one natural, calcined in the mine by subterranean fires; the other  
 “ artificial, which is more common, and is a mixture of yellow artificial orpi-  
 “ ment, with a copper-ore called by the Germans *Kupfer Vikkel* (Nickel) cal-  
 “ cined in common fire till it becomes red.” *Lemery Dict.* 459. “ Auripig-  
 “ mentum nativum, fusum igne in vase clauso, massam dat fragilem, facile  
 “ conterendam, minii fulgore spectabilem, non valde acrem, neque adeo



“ etiam venenatum ; hanc tamen realgar, arsenicum rubrum, sandaracham, “ veteres atque recentiores appellaverunt, ipsaque ex confusione vocum occa- “ sionem dederunt erroribus in arte natis.” *Boerb. Chem.* i. p. 47. And certainly the native auripigmentum and sandaracha ought carefully to be distinguished from the factitious arsenicum flavum, (or citrinum) and rubrum, which are made of white arsenic. This Mr. *Lewis* has not done ; though he inakes the arsenicum flavum different from auripigmentum, (it is synonymum in our Dispensatory) and arsenicum rubrum factitious. See his *Pharm.* p. 81-2. —It is the native sandaracha that is our arsenicum rubrum, to which that made of orpiment may be substituted ; not that made of white arsenic.

3. Arsenicum album, arsenicum factitium offic. Arsenicum officinis crystallinum vocatur, *Matthiol.* 944. A. album, risagallum quibusdam realgar. *Worm. Mus.* 29. A. album, seu risagallum quibusdam realgar, *Charlt. Foss.* 13. A. factitium album, *Aldrov. Mus. Metal.* 354. A. album offic. *Dale* 32. Arsenicum proprie dictum, *Geoff.* i. 191. White arsenic or ratsbane, is a solid, heavy, white, semi-pellucid, not inflammable, metallic mineral ; which melts in the fire and emits copious white fumes, stinking of garlic. So that it is not a sulphur, with which it is commonly joined in authors ; and its name only places it here.

“ Datur præterea in regno minerali corpus, quod ad semi-metalla, ob “ magnam convenientiam, merito referri potest ; vocatur arsenicum. Hoc si “ purissimum est, gaudet colore albo ; in igne liquefcit, tuncque toto suo cor- “ pore, specie densissimi fumi albi, alliaceo odore infesti, avolat ; frigesactum “ vero in solidum, semi-diaphanum, ponderosum, album corpus coalescit ; “ non inflammabile est ; aeri expositum cuticulam quasi lacteam induit ; re- “ ducitur in regulum antimonii quam simillimum, qui ardet.” *Cramer.* i. p. 8. “ Eadem forma, arsenicum crystallinum purum, descriptum, ex fodinis erui- “ tur, quin & specie alba pulverulenta : rarissime tamen sic nativum oc- “ currit. Id ipsum sub specie lapidis cinerei, vel nigri effoditur, &c.” Vide *Cramer.* i. 188—91. where, among the arsenical minerals, he enumerates the the pyrites albus, auripigmentum, cobaltum of different kinds, and what the Germans call *Kupfer Nickel*, and observes that several metallic ores, earths, stones, may be referred to the arsenical minerals. “ Id solum addendum, says “ he, quod arsenicum in quibusvis mineralibus, facile sese prodat fumo albo, & “ fætore alliaceo, si hæc ardenti prunæ, vel vasculo ad ignem candenti, im- “ ponantur.” *Ib.* For the manner of separating arsenic from its minerals, consult *Cramer* ii. p. 266—86. where are several things very curious. Vide & *Phil. Transact.* No. 293. p. 1754. *Savary Dict.* ii. 1464. *Geoff.* i. 191. &c. There you have also the processes how zaffera and sinaltum (for which there is a great demand) are prepared from cobaltum ; and in order to their preparation the arsenic must first be separated ; for the collection whereof there needs only a long funnel or chimney to be added to the furnace in which the cobalt is calcined.

Of this arsenicum album is made the factitious yellow arsenic, also the factitious red arsenic and rubinus arsenicalis, by the means of brimstone and fire. “ Arsenicum album factitium, si cum sulphure decima parte mixtum, “ in crucibulum ad ignem rubescens injicitur, statim tigillo clauditur, & post- “ quam primum vel alterum minutum fluxerit, effunditur, exhibet solidum, “ fragile,

“ fragile, citrinum corpus; si vero cum una quinta parte sulphuris eodem modo liquefit, frigefacta massa, rubrum induit colorem; si tandem arsenicum & sulphur, æquali copia coliquantur, vel sublimantur, nascitur elegans, rubra, pellucida massa, quæ dicitur rubinus arsenicalis, sulphur auratum.” *Cramer*. i. p. 66. So it seems there is no need of *Lemery's* Kupfer-Nickel, nor *Geoffroy's* cupri spuma, for the production of the arsenicum rubrum factitium: and we see what influence sulphur has on the colour of arsenic, or arsenic on the colour of sulphur.

“ Arsenicum album crystallinum recens inventum est, ante ducentos annos ignotum, arte factum; dum cobaltum in smaltum paratur, ascendens flos dat arsenicum album crudum, quod clauso vase, igne valido fusum, exhibet arsenicum album venale. Vide *Kunkelium* de arte vitraria, ubi furnum hunc graphice depingit.” Vide *Boerb. Chem.* i. p. 48. “ Arsenicum (zarnich) aliud est album, & aliud citrinum, & aliud est rubrum. . . Quod ex eo sublimatum est interficit: & album ex eo interficit.” *Avicen.* l. ii. tract. 2. c. 49. p. 102. G.—*N. B.* Obiit Avicenna A. D. 1036. Was his zarnich album the same as our white arsenic?

Arsenicum or ἀρσενικον, significat masculinum ab ἀρσεν vel αρσεν, mas, & metaphorice, strenuus, fortis, ob indomitam virulentiam. Risigallum is a synonymum of the sandaracha with the French, but of the auripigment in *Schroder* and the *Old Pharm. Londinensis*. The new one has expelled all the arsenics, and with good reason.

## S E C T. II.

The white arsenic is the most virulent of all the native poisons, and destructive of every animal: the orpiment and sandaracha are milder. But I can recommend none of them in any case; although they have been used as caustics; and even the white given in agues.

“ Inter venena, loco haud ultimo arsenicum recensetur, nec immerito, quippe præter summam acrimoniam, tanto quoque malignitate vitæ nostræ balsamo infestum est, ut non modo intus assumptum, sed & extrinsecus adhibitum, horrenda symptomata introducat. . . Auripigmenti & sandarachæ vires eadem fere sunt, nisi quod in arsenico paulum sint mitigatiores, idque ob sal in præparatione ejus ascedens. *Præpar.* Sublimatio, fixatio, liquatio, distillatio.” Vide *Schrod.* p. 500 ad 503. For,

1. White arsenic is owned by all to be one of the worst and strongest of poisons; with which not only rats and mice, but camels and elephants may be destroyed. It is not only corrosive, or, as *Fernelius* calls it rather, septic, but seems to contain a greater malignity than lead, yea than any caustic, as its effects outwardly applied sufficiently evince. And yet it appears not to be either an acid or an alcali, its corrosiveness being of a peculiar kind: for (a) a strong solution of it in water, (which requires skill to effect) having ol. tartari p. d. dropt into it, produced a white heavy cloud; (b) oil of vitriol made no change in it; (c) it gave the syr. violar. a greenish colour; (d) and mixed with a solution of corrosive sublimate in water, it caused a precipitation of a white substance, as volatile alcalies do. “ A little of a solution of vitriol mixed  
“ with.



“ with an arsenical liquor, produces presently a great change of colour, and  
 “ precipitates a dark substance by degrees.” Vide *Boyle of mineral waters*,  
 vol. iv. p. 241.

“ Auripigmentum seu arrhenicum, tum purum tum sublimatum, sanda-  
 “ racha, chrysocolia, aconitum, dryopteris, pythiocampe, licet vehementer  
 “ calida, nec tamen caustica sunt neque escharotica, nec crustum in nuda  
 “ carne gignunt : sed qualitate prorsus maligna atque venenata carnis quam  
 “ attigerint substantiam corrumpunt, & in putredinem cadaverosam deducunt,  
 “ quæ multo deterior est quam in gangræna. Venenata autem eorum vis sen-  
 “ sim introlubens, præcordia, visceraque ferit. . . Majore enim copia in ulce-  
 “ ribus cordi propinquis, ut in mammarum cancro, illa, præsertim arrhenicum  
 “ & sublimatum, mulierum diebus sex sustulisse notavi, perinde ac si id hau-  
 “ sisset. Horis circiter tribus, ab insperso pulvere, vehementi rigore concussa,  
 “ vomitione mox tentari cœpit, & crebris animi defectionibus corripitur, cum  
 “ pulsu languido ; quæ dein sensum aucta, abortu extremarum partium frigore,  
 “ & facie reliquoque corpore supra modum intumescente, misere illam jugu-  
 “ larunt. . . Quocirca ejusmodi remedia prorsus exterminanda sunt.” &c.  
*Fernel*. l. 6. c. 17. p. 293. And *Wepfer* gives the history puellæ 12 annorum,  
 whose head was rubbed for the phthiriasis, with a mixture of arsenic and but-  
 ter, by a mistake, who died the sixth day. “ Pharmacopœus, says he, (for  
 “ statim aborti sunt sævissimi dolores) suadet caput aqua-perluendum esse.  
 “ Verum frustra, imo supervenerunt vigilæ, totius capitis intumescencia, de-  
 “ liqua, inappetentia, febricula, delirium.” Vide *Cicut. Aquat.* p. 282. The  
 whole from p. 274 to 296 is on arsenic and its bad effects, and is well worth  
 reading.—“ Arsenicum intus sumptum varia suscitatur symptomata, tum cæteris  
 “ corrosivis venenis communia, ut anxietates circa præcordia, lipothymiam . . .  
 “ tum huic veneno peculiaris, ut ventriculi non tam insignem erosionem,  
 “ quam extenuationem quandam, ita ut ejus membranæ folium papaveris  
 “ crassitie vix superare, pluribus in locis, videantur, licet intestina tenuia,  
 “ erossa & perforata reperiantur ; subitam corporis intumescenciam & sphae-  
 “ lationem, & post mortem repentinam putredinem, præsertim in virorum  
 “ genitalibus.” *Geoff.* i. 194. “ Arsenicum album indolem penitus singula-  
 “ rem, sibi que omnino propriam possidet, lethalem omni animali.” *Boerb.*  
*Chem.* i. p. 48. “ Sunt qui arsenicum in minima dosi ad febres intermittentes  
 “ præscribunt, sed cum usurpetur cum certo fere vitæ periculo, ideo satius  
 “ est ab eo abstinendum.” *Nucl. Belg.* p. 31. It is observed by *Wepfer*, l. c.  
 p. 288. of a dog killed by arsenic, that “ In fundo ventriculi & circa pylo-  
 “ rum, nullum inflammationis vestigium videbatur ; dum intestina tenuia tri-  
 “ bus in locis perforata erant, duobus in locis perforata, ut facile faba trans-  
 “ mitti posset ; alibi ulcus pervium facile pollicem admisisset.” Vide & *Hist.* ii.  
 p. 286.

2. Orpiment is said to be “ saporis acris ” by *Wormius*, &c. & “ igne ac-  
 “ censum, odorem exhalare sulphureum, ad alii odorem accedentem.” *Geoff.* i.  
 p. 185. This is contradicted in part by others. — “ *Geoffroy* relates that the  
 “ taste of orpiment is acrimonious : but it did not appear so to me upon trial ;  
 “ and *Hoffman* (*Obs. Chymico-Physic.* l. 3. obs. 1.) says expressly it has no taste,  
 “ and rightly observes, that though it has been long reckoned a poisonous  
 “ mineral, yet in its crude form, it does not seem to contain any virulency.

“ It

“ It has been given to dogs in considerable quantity, without proving either  
 “ emetic or purgative, or producing any fatal effect; but after it has under-  
 “ gone the fire, it really acquires a caustic and poisonous quality; even as  
 “ antimony, which in its native form has no virulent effect, but as soon as it  
 “ is stript by fire of its sulphureous covering, it becomes a most violent eme-  
 “ tic.” *Lewis Pharm.* p. 82.—*Obiter N.B.* All violent emetics are not caustic.  
 —It must be owned also, that *Dioscorides* says, “ Sandarachæ datur purulenta  
 “ excreantibus emulso: quin & adversus veterem tussim cum *resina* suffitur,  
 “ nidore per fistulam in os attracto. Vocem denique limpidam & canoram  
 “ facit, cum melle delincta, & asthmaticis cum *resina* in catapotio datur.” l. 5.  
 c. 122. p. 373. But how to reconcile this to the septic and escharotic quali-  
 ties of this mineral I know not. “ Auripigmentum vim habet scepticam ad-  
 “ strictoriam & escharoticam, cum fervore & violento morfu: reprimat &  
 “ quicquid excrevit, ac pilos detrahit. . . Sandarachæ vis & ustio eadem  
 “ quæ auripigmento.” *Dioscorid.* l. 5. c. 121 & 122. p. 372-3. “ Calx,  
 “ sandarachæ, & auripigmentum, eisdem ventris & intestinorum cruciatus  
 “ cum vehementi rosione inferunt.” *Dioscorid. Alexip.* c. 29. p. 412. And in  
 this all the antients agree. “ Auripigmentum facultatis est causticæ, tam  
 “ combustum quam non; utuntur ad denudandam pilis partem quamvis;  
 “ verum si diutius inhærat, nec curi etiam ipsi parceret.” *Galen. Simp.* l. 9.  
 p. 68. G. “ Sandarachæ urentis est facultatis, seu auripigmentum.” *Ibid.*  
 p. 70. H. But, moreover, the moderns seem also to have observed the poi-  
 sonous quality of crude orpiment. “ Apud clar. *Amman. Med. crit. cas.* 60  
 “ arsenicum, & cas. 98 sandaracham venena aperte Alma Fac. Lipsiensis Med.  
 “ pronunciavit.” *Wepf. de Cicut.* p. 293. and p. 282. there is an account of a  
 child poisoned, by licking some pigmentum librorum viride, made ex san-  
 darachæ ac glasto indico. Hence, and since orpiment contains arsenic, I  
 think there is sufficient reason to condemn it, and sandarachæ too as poisons,  
 and banish all the three (out of the shops, at least if not) out of the Materia  
 Medica.

If there is any specific antidote to arsenic, it is unknown to me: but anta-  
 crid, mucilaginous and oily liquids, plentifully and quickly swallowed, and  
 thrown up again, are among the best remedies for poisons in general. “ Ex-  
 “ hibenda quæcunque simul, & acrimoniam temperandi, & facile vomitio-  
 “ nem, lubricamque alvum præstandi vim habent; cujusmodi ebisci & malvæ  
 “ succus est, natura enim utrique perlubrica. Præbendum etiam decoctum  
 “ seminis lini, aut tragi frumentacei, vel oryzæ, lacque cum aqua multa  
 “ copiosum; juraque denique pingua bonique succi.” —“ Arsenicum est præ-  
 “ sentissimum venenum neque datur excellentius præsidium quam in lacte, si  
 “ liberalius hauriatur, ita enim erodens ejus virus mitigatur, & cum vomitu  
 “ successive foras ejicitur.” *Frid. Hoff. Diff.* dec. 2. diff. 7. p. 330. Boles, an-  
 timonium diaphoreticum, and the like inviscantia are recommended, and may  
 be of some use: but sand is as good as the pulvis crystalli. “ Relatum mihi  
 “ fuit nuper, venenum, quo venificæ quædam Romanæ, sub impio pietatis  
 “ furore, gravem stragem ediderunt, & sub Alexandro VII. diri facinoris me-  
 “ ritas pœnas luerunt, arsenicale fuisse, quod *aquettam* appellarint: huic simi-  
 “ lem esse Parisiensem, in quas nunc merito pari severitate animadvertitur  
 “ atque præcipuum alexipharmacum succum citri esse.” *Wepfer. Cicut. Aquat.*



p. 295. "Memorable est quod tradit *Cl. D. Job. Kunkelius* (*in Obs. Chym.* c. 3. p. 43.) Nimirum cuidam tenellæ ætatis contra pediculos suum fuit linim: seq.

"℞ Mercurii dulcis ʒj.

"Mercur. vitæ ʒj.

"Ung. pomati ʒj. Pharmacopœus imperitus loco mercur. dulcis permiscuit mercur. sublimatum: inde caput valde intumuit cum inflammatione, ut brevi infanti pereundum fuisset, nisi a Medico Licentiatō intellexisset præsens antidotum lixivium forte esse, quo cum linteo applicato quoque brevi convaluit, ita tamen ut capilli exciderunt. Idem contra arsenicum valere innuit l. c." *Wesper* *ibid.* p. 296. But as the succus citri would have had no effect on the sublimate; so I fear neither that, nor a lixivium, would have proved an antidote to arsenic. What effect limewater would have on arsenic I know not; but since it precipitates a solution of sublimate, and turns it to turbith mineral, it is not improbable, that it might be of use against it, either inwardly or outwardly applied. Perhaps the *lixivium forte* was only lixivium calcis vivæ.

"Si vero mors (a sumpto arsenico) non derepente subsequatur, oriuntur febres hæcticæ, tabes, membrorum resolutio, tremor, nonnunquam mentis alienatio. Quidam crystallum montanum, in alcohol redactum, tanquam specificum arsenici antidotum commendant; sed tutior mihi videtur, larga & frequens lactis, olei, & jurum pinguium potatio, dum venenum in primis viis adhuc continetur; si vero jam intra vasa irreperit, tunc theriaca, orvietanum, lapis bezoardicus, pulvis viperarum, radix contrayervæ, cætera medicamenta alexiteria & corroborantia, ac tandem dicta lactea, adhibenda sunt." *Geoff.* i. 194. Opiates may be of some use, as they diminish the irritation; but arsenic acting principally on the primæ viæ, more benefit may be expected from diet than from medicine, though antiseptica, balsamica, lenia diaphoretica and corroborantia, intermixed with proper nutrientia, may do service. Would terræ absorbentia ut creta, or ferrum pulveratum, in any wise fix or weaken arsenic in the stomach? Vide *Cramer.* i. p. 33. What effect have acids on it, as sp. vitriol? See *Rieger Introd.* vol. i. p. 912 and 920. where are many things concerning its virulency, and other qualities, which are truly curious. I shall only farther observe here that the poison wherewith the veneficiæ Romanæ in Pope Alexander VIIth's time, gravem stragem ediderunt, was ratsbane dissolved in water by decoction; vocabatur aquetta, & apud Neapolitanos audit aqua della Toffina:—That it was used in *Moscovy* for agues, till the Czarina prohibited severely the selling of it:—That secundum expertiss. *Brandt.* in *Acta L. Suec.* 1733. arsenici p. 1. penitus solvitur in aquæ p. 48. si super ignem ebulliant: also in sp. vini, vel aceti p. 75; aq. fortis p. 50; sp. salis p. 24; aqua regia p. 6.

## S U C C I N U M.

### S E C T. I.

Succinum, electrum, carabe offic. Succinum, *Arabibus* ambra, *Persis* carabe, *Ægyptiis* sacal, *Græcis* electrum, *Antiquis Germanis* gleßum vel gleße nominatum,

tum, *De Boot*, p. 321. Succinum; *Græcis* ἡλεκτρον; *Arabibus* carabe; *quibusdam* ambra citrina; *Veteribus Germanis* gleffum; *Boruffis* genturum, *Worm. Mus.* p. 31. Succinum: *Græcis* ἡλεκτρον; *Arabibus* carabe; *quibusdam* ambra citrina, *Charl. Foff.* 14. Electrum sive succinum, *J. B. i. ii.* 330. Succinum, *Aldrov. Mus. Met.* 403. *Calceol. Mus.* 180. *Merr. Pin.* 219. Succinum, carabe, *offic. Dale* 25. Succinum seu ambra citrina, *Hoffman.* p. 538. Amber.—This is a solid, hard, semi-pellucid, or transparent mineral sulphur, of different colours, and of a subacid resinous taste, and fragrant aromatic smell, especially when dissolved.

“Electrum, succinum, coloris nigricantis, lutei, fusci; semi-diaphanum, sæpe valde pellucidum; leve, aquæ tamen fundum petens; valde durum, neque & aquæ ebullientis calore mollescens; igne tamen fortiore liquefcens, spumescens sal acidum. Solidum fundens, huc, (*viz.* ad mineralia sulphurea) quoque pertinet. Resolvitur distillatione chemica, in olea, primo subtiliora, sensim crassiora, & salem acidum solidum: quæ quidem olea cum naphtha & petroleo adeo conveniunt, ut a pharmacopœis & seplasiariis, nisi semper, tamen plerumque, hisce nativis substitui videantur. Caput mortuum, a distillatione residuum, haud absmile est bitumini Judaico, sub quo nomine etiam venditur.” *Cramer.* i. 187.

In *Ballenden's Boetius's Cosmographie and Description of Scotland*, cap. 15. which contains “The description of Orknay, Schetland, with sundry uther small Ilis, &c.” it is thus written. “Among the rochis and craggis of thir ilis (*viz.* of Schetland, &c.) growis an maner of electuar and goum, hewit lik gold, and sa attractive of nature, that it drawis stra, flox or hemmis of claihs to it. On the samyn maner as dois ane adamant stone. This gowme is generat of see froith quhilk is cassin by be continewal repercussion of cragis againis the see wallis. And throw ichand motioun of the see it growis as teuch as glew, ay mair and mair, quhill at last it fallis down of the crag in the see. It is said be thaym that hes experience thairof, that this goum (quhen it lysis on the crag) is like ane froith and blob of water. Becaus it is nocht than sufficientlie wrocht be motioun of the see. Oftymes the see tangle is found involvit with yis goume. Becaus it is doung heir and thair sa mony wayis be alluvion of water, and sa lang as it fletis, it is sone involvit with ony thing that it metis. Twaz eir asfor the cumin of this buke to lycht, arrivit ane gret lomp of this goum in Bouchquhane, als mekle as anchors, and wes brocht hame be the hirdis, (quhilkis wer kep and thair beistis) to thair housis, and cassin in the fyre. And becaus thay fand ane smell and odour thairwith, thay schew to thair maister, that is wes gan and for the sens that is maid in the kirkis. Thair maister wes ane rud man as thay wer and tuke bot ane litill part thairof, and felft the remanent behynd hym as mater of litill effect. All the partis of this goum (quhen it wes brokin) wes of the hew of gold, and schane like the lycht of ane candyll. The maist part of this goum and electuare wes distroyit be rud peple, afore it come to ony wyse mannis eris. Of quhome may be verifit the proverb. The sow curis na blame. Als sone as I wes advertist thairof, I maid sic deligence, that ane part of it wes brocht to me at Abirdene.”—This book was “printed in the zeir 1536.”



In the shops it is in small fragments, and of different colours, white and opake, yellow, lighter or darker, and more or less transparent. "Species sunt, 1. Flavum, yellow amber. 2. Opacum, & variis coloribus ignobilioribus respersum, dark coloured and spotted amber. 3. Album non pellucidum, white amber." *Charlet*. l. c. But the most pellucid is sold commonly for the succinum album; and the darker coloured and brownish for the succinum flavum. Vide *New Dispens.* p. 213. where the author says, "The dark coloured and opake sorts, by digestion with certain expressed oils, and animal fats, become clearer, paler coloured, more pellucid and considerably harder."

Amber is found either on the sea shores, or in the earth, in several places. *Wormius* had it from Iceland, Sweden, Silesia; *Rabeyro* says large pieces are found on the coast of Ceylon. *Harris Coll.* ii. p. 461. It is dug out of the mountains of Provence, also in Italy and Sicily, &c. Vide *Lem. Diet.* p. 285. "Reperitur apud nos ad Norfolciæ littus; ubi ego frustulum uncialis magnitudinis inveni in aselli majoris piscis ventriculo, dum eum cultro anatomico diffecarem. Id quod littoris illius accolæ haud raro contingere affirmabant." *Charl.* l. c. But Prussia and Pomerania afford more amber than all the world besides. Yellow amber is found only upon the coast of Prussia in the Baltick sea, the sea throwing it on the sands when certain winds blow. The *Electro* of Brandenburg farms it out for 20 and sometimes 22,000 crowns a year." Thus *Tavernier*, vide *Harris Coll.* ii. 375. *Pliny* mentions as extraordinary a piece of amber brought to Rome of 13 lb. weight. Vide *Hist.* l. 37. c. 3. p. 886; *De Boot* pieces as big as a man's head; *Il. Boetius* one as big as a horse. "Allata est abhinc duobus annis in Buthquhaniam electri, (called succin. also above) hujusce modi massa, equi longe quantitatem superans, quam conspicientes prope gregem suam pascentes pastores, ignari quidnam esset, ubi haud insuavem odorem conjecit forte in ignem cognovissent, extemplo ad parochum suum læte recurrunt, thuris loco ad sacra usu haud inutili nec ingrato fore dicentes. Verum is æque imperitus ubi quod satis videbatur accipisset, reliquum haud magni faciens, in littore pastoribus ludibrium, reliquit: partibus enim abruptis, candelarum more incensum, rem auri pretio aliquando habitam, inutili lascivia, prope omnem pederentim perdiderunt, priusquam ad peritorum aures res tanta perlata fuisset. In quos vere id proverbium competit, *nihil cum amaricino sui*. Mihi autem ubi propemodum fuisset omne dissipatum, nunciantibus amicis, portio quædam exigua contigit." Thus *Hæst. Boeth.* in *Hist. Scotorum* (edit. Badii Ascensii) fol. 16. b. *Hæst. Boetius* tradit, apud Schetlandiæ Buthquamiam, electri massam equo majorem appulisse, qua rustici & parochi sacerdotes ignari quidnam esset, thuris loco utebantur." *Tollus* in *De Boot.* p. 326. "Succinum raro occurrat, meminit tamen *H. Boethius* in *Hist. Scotiæ* ingentis massæ, equo majoris, inventæ in borealibus Scotiæ tractatibus." Vide *Merret Pinax.* p. 219.

Authors both antient and modern are much divided in their opinions concerning the origin of succinum. Vide "Quæ mentiti sunt autores de succino." *Plin.* l. 37. c. 2. p. 884. lin. 36. ad finem, and his cap. 3. p. 886. "De ortu & medicinis, & generibus & luxuria succinorum." Among the moderns there are many treatises on succinum, as *And. Aurifabri Succini Historia Regiamenti*,

*Regiomonti*, 1557, in 8vo. *Severini Gobelii, De Succino lib. 2. extant cum libris fessilium*. Tiguri, 1565, in 8vo. *Jo. Wigandii Vera Historia de Succino Borussico*, &c. *Jenæ*, 1590, in 8vo. Also *Libavius, Hefsus, Mathiolus, Cardanus, Agricola, Jo. Baubinius, Boetius, De Boet*, &c. have written much concerning it. But the author most commended is *Philippus Jacobus Hartmannus* in his *Succini Prussici Physica & civilis Historia, cum demonstratione ex autopsia & intimicri rerum experientia deducta: Francoforti*, 1677, in 8vo. Here you have various opinions refuted: as its being originally excrementa animalium, or arborum; a gummi or resina arborum; a concretum, pergamenum, or sudor maris; a petroleum or bitumen liquidum, &c. and his own confirmed, viz. that it is a native solid mineral sulphur or bitumen.

Doctor *John Fothergill*, in a letter dated London, July 14, 1743, informs me, that there has been lately published in Germany a description of the amber containing insects, in the *King of Poland's* collection at Dresden, wherein is a large digression de generatione succinorum, by — *Sendelius*, who endeavours to prove it to be a bitumen, hardened by the vitriolic acid. The Doctor calls this book a pompous performance, consisting of 320 pages in folio; which he has abridged into 12 sheets. He differs from *Sendelius*, and is of opinion that amber is, in its origin, a vegetable resin, indurated and changed by the acidum vagum fodinarum. He promised to send his reasons for it: but I have not yet received them.—Now, since a gentleman of Dr. *Fothergill's* character thinks succinum originally a vegetable juice, it is not amiss to enquire whether what all we know of it *with any certainty* agrees with that opinion.

We are pretty certain, 1. That amber is dug out of the earth, and sometimes at a considerable distance from the sea, as is observed above; *Rondeletius* has a piece found in the Pyrenian mountains, “cujus altera pars fuit Carabe, altera gagates lapis.” *E. Gobelio Ph. Bib. 1. p. 49.*—“Gagates, qui procul dubio bitumen est, in visceribus terræ multis sæculis excoctum, glebam habui, erutam prope Narbonem in ejus lapidis fodinis, dimidia ex parte nigra, altera flava succini modo: quod argumento certissimo est succinum eo modo gigni quo discimus.” Vide *Dalechamp. in Plin. p. 887, not. b.*—“Vidi succinum in littore Prussico, non modo colligi appulsum fluctibus, sed in eodem ex terræ venis & visceribus etiam effodi; at hoc cum sæpe molle ac friabile sit, marinæ aquæ injicitur, ut ab ea duriem acquirat.” *Kempf. Amœnitat. Exot. p. 637.* And *Hartman* says all Prussia and Pomerania are full of amber. Where are there trees sufficient for the production of it? “In regione quæ succinum mittit, resiniferæ nullæ sunt arbores.” *Dalechamp. l. c.*

2. That it is found near to, or on, the shore in Prussia, in greater plenty after the seas have been strongly agitated by tempestuous west or north-west winds; as if by the force of the waters, it had been broken off from the submarine hills or rocks. Vide *Hartman. p. 66.*

3. That in the succini fodinis, the amber is commonly found in a mineral ligneous vein or matrix, which *Hartman* says, “Magnum fœtorem, si fornicibus incalescentibus imponatur, excitat; odorque nitrum vitriolo & sulphure permixtum spirat. Ita quoque aqua destillata sulphureum atque alium quendam intollerabilem fœtorem excitat, non alienum prorsus ab illo qui est phlegmatis destillati succini, præsertim cum adhuc ex retorta illa aqua destillaret. Marinæ forte hujus distillatæ odor adscribendus, quod ejusmodi



“nauseam, qualem alga marina procreet, ita tamen ut quasi allii odor ad-  
 “mixtus deprehendatur.” p. 65. “Exsiccatum (lignum) prorsus aquæ in-  
 “jectum in crustas, quas humor prius magno cum crepitu hiare facit quibus  
 “constat, diffilit.” p. 66. He proves it not to be originally a vegetable  
 wood. Amber is found sometimes also in a blue clayey vein, in lutea cærulea  
 vena. Vide *Hartman*. cap. 3. p. 54—68.

4. That many heterogeneous substances are inclosed in it; as ants, spiders,  
 flies, bees, small fishes, &c. Hence *Martial*, *Epigr.* l. 6.

“Dum Phaethontea formica vagatur in umbra,

“Implicuit tenuem succina gutta feram :

“Sic modo quæ fuerat vitâ contempta manente,

“Funeribus facta est nunc pretiosa suis.”

To say nothing of the representations of death with his sickle, of a man on  
 his knees holding up his hands before a cloud, of a monk praying before a  
 cross, of the Virgin Mary and a Jesuite, &c. said to be in some pieces of am-  
 ber, perhaps as much owing to art as nature; or of plants, landskips, woods,  
 castles, fire, smoke, &c. (seen also in pebbles and agates) not a few of which  
 are mentioned in *Hartman*; I shall only add, that *Gobelius* says, a Dantzick  
 merchant had two pieces of amber (*palmæ magnitudinis*) whereof the one con-  
 tained a frog, and the other a lizard, *in uno intestina rupta, in altero spuma &*  
*sanguine os oppletum apparuerit*: which (true or false) gave occasion to a poem  
 by *Daniel Hartmannus*, first printed at Cracow, and afterwards in *Crato's Conf.*  
*& Epist.* l. 4. p. 307—314. Vide *Hartman*, cap. 5. p. 78. ad p. 99.—And

5. That amber is of very different colours, some of it opaque, some very trans-  
 parent, heavier than water, and very hard; that the heat of boiling water  
 does not soften it, though in a stronger heat it melts, foams, flames briskly,  
 and consumes, leaving very little ashes behind it: and that by a chemical  
 distillation it yields various oils, very like the petrolea; an acid solid or dry  
 salt, and a caput mortuum or carbo resembling Jews-pitch. Vide *Cramer* l. c.  
 p. 292.

From all which certain facts and observations I think there is much more  
 reason to conclude that amber is a mineral originally, than a vegetable sulphur,  
 formed in its proper veins or matrices of a fossil phlogiston, hardened by a  
 mineral acid. The oil is evidently mineral: How it comes by a volatile acid  
 is not so evident. But why may not the acidum vagum fodinarum, by the in-  
 fluence of the oil, heat, air, and the action of other minerals on it, be so al-  
 tered and volatilised? Whence come the various acids of vegetables? What  
 acid does petroleum yield? Perhaps the acid of succinum comes from the sea-  
 salt, or fossil-salt. — “Succinum oleis suis petroleo, naphthæ, similibusque  
 “satis accedit: residua parte post oleum primum & secundum eductum, su-  
 “perstite, quam proxime refert lapidem *gagatem*: sale acido rursum chalcan-  
 “thini quid refert.” *Boerb. Chem.* ii. p. 288. “There seems to be some-  
 “what in amber analogous to spirit of salt; for having treated it with fixed  
 “alkaline salts, according to the manner described by *Boerhaave* (*Process* 58.)  
 “and affused sp. vini sale tartari rect. in order to extract a tincture, various  
 “saline concretions, after some time, shot at the bottom of the glass: these

“ crystals were evidently cubical, decrepitated on the fire, and exhibited the  
 “ other marks by which sea-salt is usually distinguished, though I am pretty  
 “ certain there was no sea-salt among the alkaline salts made use of.” *Lewis*  
*Pharm.* p. 95.

“ The succinum album, though opaque, is most esteemed, as more volatile  
 “ salt is got from it than from any other: the yellow is transparent, and gives  
 “ much oil.” *Lemery Chym.* 533. “ Succinum citrinum plus olei continet;  
 “ album minus olei, & plus salis volatilis recondit: in fusco vero terra  
 “ uberior est. . . Albi lib i. salis volatilis ziv. flavum vero eadem quantitate,  
 “ vix zj. præbet.” *Geoff.* i. p. 167. *Vix credibile! Vide infra.*

That amber is the ἤλεκτρον λυγκασίον, and succinum of the ancients, there is  
 no reason to doubt. I find it not in *Hippocrates*:—but *Aristotle* mentions it  
 (ἤλεκτρον), & occlusa in eo animalia. *Meteor.* lib. 4. c. 10. p. 460. *H. Theophrastus*  
 has both electrum, and lyncurium, and seems to credit the fabulous  
 origin of the latter; which *Dioscorides* declares to be a succinum. *Galen* has  
 it not among the simples, though he describes a pastillus de succino *De com.*  
*med. secundum loca.* l. 7. p. 184. “ Ex lyncurio sculpuntur sigilla; estque so-  
 “ lidissimum, quemadmodum lapis. Trahit enim sicut electrum: quidam  
 “ autem aiunt non solum festucas & lignum, sed etiam æs, & ferrum si tenue  
 “ sit, sicuti & *Diocles* dicit. Porro autem pellucida sunt valde & ignea; me-  
 “ liora autem ex feris quam ex cicuribus; & e maribus quam e sæmellis: ut-  
 “ pote & nutrimenti differentia, & aut laborare aut non laborare, & omnino  
 “ totius corporis naturæ, quatenus hoc siccus, illud vero humidus. Inve-  
 “ niunt autem fossiores periti. Abscondit enim & aggerat arenam cum minxe-  
 “ rit. In poliendo autem multum operæ sumitur. Siquidem & electrum la-  
 “ pis est; etenim fossile in Iycuria; & hos quidem rapiendi vis consequatur  
 “ necesse est; potissimum quia clarum & manifestissimum est quod ferrum  
 “ ducat. Nascitur autem, & ipsa rara, & paucis locis.” *Theophrast.* *De Lap.*  
 fol. 10. b. “ Fertur populorum lachryma, quæ secundum padum amnen  
 “ destillar, concrefcere, fierique electrum dictum, ab aliis chrysophoron. Id  
 “ attritu jucundum odorem spirat, & colore aurum æmulatur. Tritum po-  
 “ tumque stomachi alvique fluxiones sistit.” *Dioscorid.* l. i. c. 113. p. 59.  
 “ Lyncis urina, quam lyncurion appellant, simul atque meitur lapidescere  
 “ frustra creditum est; quare vana quoque & inutilis quæ de eo fertur histo-  
 “ ria. Est enim quod a nonnullis electrum pterigophoron vocatur. Id po-  
 “ tum ex aqua stomachi alvique fluxione laboranti convenit.” *Dioscorid.* l. ii.  
 c. 100. p. 121.

Electrum, ab ἤλεκτρον, fol. aliis ab ἔλκω, traho. “ Quod arboris succum  
 “ esse prisce nostri credidere, ob id succinum appellant. Pineæ autem arbo-  
 “ ris esse indicio est pineus in attritu odor; & quod accensum tædæ modo ac  
 “ nidore flagret.” Vide *Plin.* l. 37. c. 3. p. 886. — Carabe according to *Scaliger*  
 signifies rapter; according to others an offering, from *carab* to offer, be-  
 cause offered in sacrifices by the Arabs. Vide *J. B.* 1. 2. 337. “ Ambari no-  
 “ men barbarum derivant, ab Arabicis vocibus *Haur Rumi*, populus Ro-  
 “ mana; ex quibus per corruptionem facta sunt *Haurum*, *Habrum*, *Hambrium*,  
 “ & *Ambarum*. *Karabe* nominatur, vel ex voce Persicâ quæ pælearum raptio-  
 “ rem significat, vel ex Arabica voce *Kar* quæ quoddam bituminis genus de-  
 “ notat.” *Geoff.* i. 165.—*Elegant derivation!*



## S E C T. II.

Amber is vi-vitæ dissolvable, and when dissolved is bitterish: it is aromatic, balsamic, antiseptic, diuretic, uterine and antispasmodic; and therefore a stimulating sulphur, mineral rosin, or as it were solid balsam. Hence it strengthens the fibres, accelerates the motion of the fluids, increases attrition, attenuates phlegmatic humors, corrects alkaline and putrid acrimony, and promotes perspiration and urine: and, as a cephalic and uterine, is commended internally in apoplexies, epilepsies, lethargies, vertigoes, vapours, female-obstructions, fluor albus, &c. and externally, as anodyne and discutient, for pains, rheums, swellings (in suffitu) &c.

“Calfacit, roborat, exsiccat, adstringit leniter; capiti & utero imprimis dicatum est. Hinc adhibetur utiliter in catarrhis, epilepsia, apoplexia, lethargo, vertigine, suffocatione & inflatione matricis, profluvio sanguinis & seminis (quod ad naturalem statum reducit), in fluore albo mulierum. Cæterum globuli succinei ad oculorum defluxiones miro successu auxiliari dicuntur, annexi occipitio. Iidem etiam collo gestati, præpediunt ne distillationes in gutture ferantur. *Bapt. Port. Matth.* — Usus præcipue albi, tam internus, quam externus esse potest. Interno exhibetur ad ʒj. usque. *N. B.* Alii commendant pro amuleto in peste, si eo pulsus sæpe fricentur. *Præp.* 1. Præparatio. 2. Solutio. 3. Distillatio.” *Schroder.* (p. 513.) Who says flavum ad albidinem reduci potest by decocting it with double its quantity of salt for 14 days, or till it turns white; which, if true, explains the reason of the difference as to colour, &c. betwixt the white and yellow. “Interdum etiam variis scatet insectis, illi dum adhuc molle fuit inviscatis; sic & solo ignis adminiculo ita solvi potest ut illo cadavera obduci queant.” *Vide Cl. Morhoff.* l. 1. p. 39. *Hoffman* in *Schrod. Mang.* p. 343.—But,

1. I cannot discover any taste in amber; though heated by rubbing, as well as burning, it has a fragrant resinous aromatic smell; which is so generally agreeable that the *Chinese* consume great quantities of it, as a perfume, at their feasts. “It is a custom in *China* for the great lords at their feasts to set three or four perfuming pots on the table, and to throw into every one of them a vast quantity of amber, and the bigger the pieces, the more magnificent is the entertainment accounted. This waste of amber makes it the best commodity that can be carried into *China*; but the *Hollanders* have engrossed it.” *Tavernier* (*Harris Coll.* ii. 375.)—According to Mr. *Geoffroy*, “Succinum est saporis subacris, bituminosi, aliquantulum astringentis.” The heat of boiling water can neither soften it, nor extract any thing from it: hence an useless ingredient in distilled waters. But a tincture extracted f. a. has indeed a very considerable taste: “Tinctura hæc, nec acida, nec alcalina, nec oleosa, totam succini compagem dissolutam gerit, sapore aromatico, amarescente, mire reficiente cum sensu quasi adstrictionis, & fragrantia prorsus instauranti. . . Si de tinctura hac dimidium alcoholis abstrahitur, crassamentum reliquum, farinam quasi succini deponit, quæ, collecta seorsum, odoris est saporisque aromaticotati.” *Boerb. Chem.* ii. p. 239.

2. Succinum

2. Succinum yields a strong tincture to spirit of wine, which alone dissolves a considerable quantity of it; but assisted by a fixed salt it leaves a small part undissolved. "Succinum spiritu vini dissolvitur, solvitur quoque in oleo spicæ, lavendulæ, & in oleo lini, licet difficiliter." *Geoff.* i. 167. Bur,

3. "By a chymical analysis succini flavi ℥xxxii. gave spiritus ℥℔. olei albi pellucidi ℥v℔. olei nigri ℥xii℔. salis volatilis ℥℔. carbonis ℥xii." Vide *Lemery Chym.* p. 561. Was nothing here lost? "Peracta distillatione remanet capitis mortui nigri & splendentis ℥j. pro singula succini semilibra." *Geoff.* i. 168.—"Succini vulgaris lb i. secundum *Newmannum*, olei ferme ℥xii, phlegmatis ℥i℔. capitis mortui terrestris ℥j. & salis aciduli circiter ℥iv℔. supeditavit." Vide *Cartheuser* ii. p. 410. Here were lost ℥viii℔.

4. It is recommended in so many diseases; that, considering its texture, one may readily conclude it has no effect in any. Can it be of use in syncope, faintings, palpitation cordis, plague, poisons, &c. in vertigoes, apoplexies, epilepsies, lethargies, palsies, and other diseases of the head; in asthma, dysurries, the stone, dropsies, gonorrhœas, hæmorrhages, dysenteries, uteri fluores, obstructions mensium, hysteric fits; ad partum retinendum, & partum facilem reddendum; in catarrhs, gouts, all diseases of the stomach, &c. Vide *De Boot*, p. 327—33. Or may we not rather conclude, that it is of no use in any of them, and is discharged as it was taken: especially since there are many instances of succinum being found in quadrupeds, birds, fishes, as well as in their dung, unaltered in any of its qualities. See *Hartman*, cap. 3. §. 9. p. 67. De loco succinorum præternaturali in animalibus terrestribus, volatilibus, aquatilibus. Far less can we expect any advantages from it, as an amulet or externally applied, in substance: for though for pains, laxity or weakness of the parts, the fumes of burning amber are ordered to be received into flannel, and the part affected well rubbed with it, by very good authors; yet it may be doubted whether a warm and dry friction, without such fumes, would not do as well. "Externe in fuffitu, in cataplasmatibus & cucuphis adhibetur, ad cerebri affectus sanandos. Ejusdem fumus ore receptus in angina incipiente, in prolapsu uvulæ & tonsillarum tumore & catarrho, sæpe conducit." *Geoff.* i. 169. "Succini miram, resinofam, singularem naturam, nemo satis clare explicuit hætenus. . . Mirum valde est corpus hoc, ita æquabiliter totum fere solvi in alcohole, absque notabili elementorum separatione, & tamen simul acquirere vires medicatas, adeo nobiles, quæ in succino integro, non reperiuntur antea: præcipue cum destillando dividatur in partes adeo varias & singulas, diversæ virtutis, & indoles." *Boerb. Chem.* i. p. 232. Vide *Quincy Ph.* p. 86. Dr. *Morton's* antispasmodic powder.

### S E C T. III.

Prepared amber is given to ℥j. And a tincture, spirit, salt and oil are drawn from it.

The dosis is ad ℥j. *Schroder*; from gr. x. to ℥℔. *Lemery Chym.* p. 554; "a ℥j. ad ℥j. in ovo forbili, vel alio vehiculo idoneo." *Geoff.* i. p. 168.

1. *Succinum preparatum offic.* is amber first pounded in a mortar and then levigated on a smooth hard marble to an impalpable powder: water is conveniently



veniently added by some. "Alcohol succini tenuissimum magisteriis longe præstat." *Geoff. i. 169.* Can it thus be dissolved within us? *Sane dubito.* Will the yolk of an egg or bile dissolve it? *Vix.*

2. *Tinctura succini offic.* is amber opened by a fixed salt, and dissolved in spirit of wine: so that it is an elixir rather than a tincture. "Hæc & sine alcali, cum alcohole solo, parari potest eodem modo, sed cum alcali est melior." *Vide Boerb. ii. 232.*

"The alkaline liquor may be omitted, for it not only does not promote the dissolution of the amber, but likewise injures the medical virtues of the preparation," &c. *Vide New Disp. p. 424.* But what if the amber be precipitated in the primæ viæ without it? or the medicine be improved by it? Does it not assist the vis-vitæ, or render the tincture more saponaceous? The new tincture is made e succini ʒij. & sp. vitrioli dulcis lbj. digested four days. *Ph. Edin. edit. 1756. p. 65.*—How different this tincture from those of former dispensatories!

This I think has a better claim to the virtues of succinum than the prepared amber; and is of great use in nervous diseases, ubi natura languet. Dosis ad ʒij. "a guttis aliquot ad ʒj." *Lem. Chym. 556. Geoff. i. 169.* "It is given to 70 or 80 drops." *Quincy Ph. 288.* "Est tinctura hæc incredibilis virtutis medicatæ adversus omnes illos morbos qui a nimia mobilitate spirituum, & systematis nervosi originem ducunt; eo laxa syntaxeos debilitas in primis spectat. Inde hypochondriacis, hysteriis, languentibus, frigidis, aquosis, mucosis, leucophlegmaticis, catarrhosis, ex his causis sæpe convulsis, mire prodest. Ut Boyleus & Helmontius ideo inter summa antispasmodica, imo & antiepileptica, hac de causa nato malo, retulerint." *Boerb. Chem. ii. 233.* "Si fumatur ter quaterve de die ad guttas centum." *Boerb. Chem. M. S. 132.* There is no tinctura succini in the *New Lond. Ph.*—*Strange!*

3. *Spiritus, sal volatile, & oleum succini offic.* are the acidulous phlegm, acid salt and oil of amber, separated by distillation and rectification. *Vide Analysin Succini, Boerb. Chem. Process. 87. Lem. Chym. 557.* The oil being again distilled by itself, the thinner part rises, and a thicker remains, called by some balsamum succini; which is for external use.

The oil (which is very penetrating) is subacid and antiseptic, diaphoretic, diuretic and menagogue. It is recommended internally chiefly in hysteric and hypochondriac affections; and externally for pains, contractions of the nerves, and paralytic disorders.—The salt, retaining some of the oil, adds to its virtues those of a mild volatile acid; and is therefore more antiseptic, and reckoned an excellent diuretic and antihysteric. "In the convulsive deliriums of fevers, it (viz. the salt) is mightily prescribed. . . In all chronic cases likewise, as epilepsies, palsies, &c. it is scarce ever left out of prescription. . . It quickens also the operation of aloetic and resinous cathartics." *Quincy Ph. 287.*

"Olea nova distillatione rite depurata, vim habent acrem, balsamicam, concitantem, diaphoreticam, diureticam, emenagogam, hysteriis utilem facultatem. Externe quoque illitu & affricu, multum profunt ad contracta debilia, paralytica, torpida membra sananda. Sal ille volatilis, acedine grata, balsamica pingui, penetrabili, antiseptica, nervos stimulante, spiritus

“ spiritus commovente, est verus sal volatilis oleosus, acidus. Hinc antihyster-  
 ricorum et diureticorum princeps, imprima ubi distillatione nova depura-  
 tus est.” *B. Chem.* ii. 288. “ Sal coquendus est in spiritu proprio, vel in  
 aqua, et seponendus ad crystallos formandas: ita ab oleo adhærente munda-  
 bitur. Et quo sæpius hoc fit, eo purior erit.” *Pb. Lond.* p. 49. But if the  
 salt be freed from all its oil, what better is it than many other acids? what share  
 will it have of the virtues of amber? The spirit owes all its virtues to the  
 salt. . . . The oil may be given to gut. x; the salt to ʒß. “ The white oil may  
 be given from gut. i. to iv.” *Lem. Chym.* 557. “ From v. to xv. drops.”  
*Quincy* 287. “ A gut. ij. ad xx.” *Geoff.* i. 170. The salt “ a gr. viij. ad xvi.”  
*Lem. Chym.* 562. “ from gr. ij. to xv.” *Quincy.* “ A gr. x. ad ʒß.” *Geoff.*  
 l. c. “ The salt is extremely nauseous, having a mixed relish of salt and sul-  
 phur; so best fits the forms of boles, pills or electuaries for taking.” Vide  
*Quincy Pb.* 287. Where are shown some ways of adulterating this salt, and  
 how to discover the cheat. For the liquor succinatus. *C. C. Mickaelis* Vide  
*Geoff.* i. 170.

## L E C T U R E XXX.

## A M B R A G R I S E A.

## S E C T. I.

**A**MBRA, ambragrisea, *offic.* Ambarum, *Garz. Clus. Exot.* 147. *Monard,*  
*Ibid.* 300. *J. B.* i. 2. 326. Ambra *Worm. Mus.* 33. Ambarum, am-  
 bra, five ambara, *Schrod.* 511. Succinum griseum, ambragrisea *vulgo*, *Charlet.*  
*Foss.* 15. Ambra *Aldrov. Mus. Met.* 430. Ambragrisea, *Merret. Pin.* 219.  
*Park.* 1566. *Sibb. Phal.* 42. *Mont. Ex.* 12. Ambragrisea, *offic.* Dale 380.  
 Ambar vel ampar. aetii ambarum cineraceum seu griseum, ambra grisea, *offic.*  
*Geoff.* i. 161. Ambergrise.—This is a solid, light, opaque, mineral sulphur; of  
 an ash-colour, coarse grain, somewhat spotted when broken; of a soft, oily,  
 aromatic taste, and fragrant sweet smell; found on the sea or sea shore, and  
 sometimes in the bellies of fishes. “ The peculiar scent belonging thereto is  
 most near unto dry cow dung, in my opinion.” *Park.* l. c.

“ Good ambergrise ought to be, 1. Clean, dry, and free of heterogeneous  
 substances; though such are sometimes found in the best.—2. Of a speck-  
 led and somewhat rough, rather than fine grain, with lighter and darker  
 points in it, not shining when broken.—3. Neither too light, nor too dark  
 coloured, but between a grey and an iron colour.—4. Of a peculiar scent,  
 neither too fragrant, or too sweet a perfume, nor fœtid; (for as the true smell  
 is quite specific, and not to be compared with any thing else in the world;  
 so it cannot easily be imitated by art, &c. *Newman Pb. Transf.* No. 435.) and  
 very light specifically.—5. It ought easily to melt by heat, and run into a  
 black homogeneous substance, which is commonly tried by a hot needle, run  
 into it.” “ Igne liquefit in resinam auream vel flavum.” *Geoff.* i. 162.—



" 6. On a hot iron, first to melt, and then gradually evaporate intirely. And,  
 " 7. to be difficultly powdered though dry, not hard and friable." Vide *Kempfer. Amœnitat. Exot.* p. 635. " In ambrægrifæ zi. ad minimum olei vel pinguedinis ʒijß. preſto ſunt." *D. Newman.* Vide *Ph. Tranſ.* No. 435. p. 421.  
 " Amſtelædami 30 uſque 40 florenis Hollandicis ejus venit uncia una communiter." *Rieger* i. 461.

" As for ambergrife, there is no man in the world knows what it is, or how it is produced." *Tavern.* Vide *Harris Colleſt.* ii. 375.. " Verum nullus eſt nunc dubitationi locus, quin bituminis quoddam genus ſit, e terræ ſinu, in fundo maris emanans, primo quidem molle et liquidum, quod poſtea concreſcit et denſatur." *Geoff.* i. p. 162. The origin of ambergrife muſt ſtill be ſomewhat obſcure, ſince ſome of the lateſt authors differ widely in their opinions concerning it, ſome making it a mineral, others a vegetable, and others an animal production. Mr. *Oelven* imagined it was formed in the air like a meteor. Vide *Ph. Tranſ.* No. 433. p. 351.

" Philoſophus quidam in cunis, ut ſeiſpum vocare amavit, vero nomine *Oelven* dictus, in peculiari ſcripto ambram meteoron eſſe ſuſtinere voluit, dicens ſulphur ſeu baſamum coeleſte, quod tempore moti valde æris, in terram vel mare decidat." Vide *Mem. Treb.* 1708. p. 1781. *Reiger* i. 463.

And ſince all the diſcoveries that have hitherto been made concerning it, are not perhaps ſufficient to determine with abſolute certainty what it is; that it is a mineral (though neither Boerhaave nor Cramer name it among the foſſil ſulphurs) I think is moſt probable. For,

1. Ambergrife is found floating on the ſea, and on the ſea ſhore, in many places, as on the coaſts of Africa, and neighbouring iſlands and ſeas, from the Cape of Good Hope to the Red-Sea; in both Eaſt and Weſt Indies; ſome ſay alſo in the Mediterranean and northern ſeas and ſhores. Vide *Savary Diſt.* i. 82. *Park.* l. c. *Geoff.* i. 162. " Ambragrifea nonnunquam ventis et æſtu ad litus noſtrum appellit, idque quandoque ingenti mole, et multis in locis." *Merrret. Pin.* l. c.

2. It is found in greateſt plenty on the lee-ſhores, after tempeſtuous winds, (Vide *Garcias* l. c.) and that ſometimes in large, and always irregular lumps, or of no certain figure. *Kempfer* ſays, that, when he was in the Indies, a piece of ambergrife of 130 pounds weight was found on the coaſt of Japan. *Garcias* heard of a piece 3000 weight; but the biggeſt he ever ſaw weighed only 15 pounds. The greateſt maſs, perhaps, which was ever brought to Europe, was that which the *Dutch Eaſt-India Company* purchaſed of the King of *Tidore* for 11000 dollars, in 1693, and ſent to Amſterdam in 1694. It weighed 182 pounds Dutch-weight, and ſomewhat reſembled in figure the body of a tortoiſe. It appeared evidently not to be compoſed of different pieces put together, but to be naturally of that bulk. The Duke of Florence offered for it 50,000 crowns, which were reſuſed. Vide *Savary Diſt.* i. 82. It is deſcribed and delineated by *Giſſenius*, *Rumphius*, *Chevalier*, &c. " *Nicolaus Chevalier* prolixè illud, in exiguo tractatu anno 1700. Amſtelodami impreſſo, deſcripſit et varias icones addidit. Fruſtum hoc per multos annos cuſtoditum... tandem in fruſta confractum auſtionis lege venditum fuit." *Newman.* Vide *Ph. Tranſ.* No. 434. p. 401. He ſays it was 5 feet 8 inches thick, and 26

inches

inches long (Vide *Abridg.* V. 9. p. 358.) neither of any regular figure nor formed of various coats. I have indeed seen something like strata in large pieces of ambergrise, differing a little in colour and texture; but never any formed like an onion or calculus.

3. It is found also sometimes in the stomachs of whales. This *Serapion*, *Avicenna*, and *Simeon Setbi* observe, notante *Garcia* l. c. "Interdum in balenarum ventriculis invenitur, quæ illud aquis innatans nonnunquam divorant, alimentum esse existimantes. Verum est meo tempore, balenam circa *Canarias* insulas captam, in qua inventæ sunt plus quam centenæ ambari libræ: postea tamen infinitas balenas cum suis catulis interfuerunt, sed nihil ambari in iis inventum est. *Simeon Setbi* bituminis modo e fontibus suis manare asserit; pessimumque id esse quod a piscibus devoretur." *Monard.* l. c. "Postremæ notæ ea censetur ambra quæ in intestinis balenarum invenitur virtute quippe sua plurimum ibidem imminuta. . . . Frequens est in Japonia quæ in balenæ extis inventa, vel cum excrementis dum viveret, in mare egesta fuit: unde vulgari lingua, Japonenses ambram appellant *Kusura nosui*, i. e. stercus balenarum." *Kempfer. Amœnitat. Exot.* p. 635.

In April 1741 a spermaceti-whale ran a-ground on the coast of Gascony, in the stomach whereof was found a ball of seven pound weight, which was taken for ambergrise, and bought as such by a merchant for 650 livres, though soft and smelling much of rotten fish. Vide *Hist. Acad. des Sc.* 1741. p. 35. or *Spermaceti infra*.

4. There is found in it sometimes heterogeneous substances, as shells, fragments of shells, stones, &c. *Garcias* says also, avium rostra; and *Clusius* had such rostellæ found in ambergrise, given him by Mr *Morgan*. "Sed ea, says he, non avium ut putat *Garcias*, verum sepiarum esse deprehendi." *Exot.* p. 148. Such substances it seems to stick to accidentally, or surround, while it is soft. "Ex oceani antris recentissime appulsa mollis est, vaccino stercorei aspectu similis, et nidorosum halitum exhibet." *Kempfer. Amœn. Exot.* p. 633. He says also, p. 632. "Ambra, ex venarum subterranearum diversitate, multa varietas est, et suis quæque regionibus propria; adeo ut ex ejus inspectione, etiam natale litus, quo recepta sit, a gnaris cognosci possit."—I might add that, according to some authors, pieces have been found half ambergrise, and half wax, or ambergrise on the outside and wax within. But this I shall take notice of below; and now on this head only farther observe,

5. That ambergrise and amber yield much the same principles when chemically analysed. But at the same time it must be owned, that either there are very different sorts of ambergrise, or there has been little accuracy in the distillations of it; for though we have the accounts of six or seven of them there is so little agreement among them, that it appears still to be doubtful, whether it yields a volatile acid salt or not; or whether some ambergrise yields it, and other does not.

The first analysis that I have seen is ( $\alpha$ ) that of *Nicolaus Grimmerius*. Vid. *Miscur. Decur.* 2. An. i. p. 405. or *Bib. Pharm.* vol. i. p. 52. According to it ambergrise 3i. yields first an aqueous then a spirituous liquor, then yellow oil like those from succinum, (only the oil was sweeter scented) and next a little volatile salt yet more like sal succini; and there remained a pitchy carbo. He gives not the proportions of each of these, but too preposterously infers, "Am-



“bram nil cum corporibus animalibus, nedum mineralibus habere commune.”

(β) The next was that of *Hier. David Gaubius*, professor of chymistry at Leyden, who continued the distillation of ambræ ʒvi. for three days, increasing the heat each day. On the first day arose a spiritus aquosus almost like that from succinum; on the second day an oleum flavum, odoris fere olei succini: and on the third day an oleum rubrum, tenacius spissius also like that got from amber: and there remained about ʒi. of sæculencies. Verba ejus sunt, “Octobris 18. 1734. Ambragrisæ ʒvi. commisi distillationi ex retorta; primo die dedere spiritum aquosum acidum, talem fere ac ex succino; secundo die igne paulo aucto oleum exiit flavum, odoris fere ol. succini; tertio die, iterum aucto igne, prodiit oleum rubrum tenacius, spissius, talis naturæ ac quod de succino prodit. Nullus natus tota hac operatione sal volatilis solidus, vel acidus, vel alcalinus, utcunque igne suppressionis urgerem; remansit ʒi. circiter sæcum nigerrimarum; nec spiritibus nec oleis suaveolentia ambræ inerat, sed post annum suaveolentia hæc rediit.” Thus *Gaubius*, in *Dr. Boswell’s Dissertatio inaug. de Ambra*, (L. B. 1736.) p. 5.—(γ) The third analysis is that of *Newman Chem. P. of Berolin.* who says, “Distillatione mea, ex ambragrisæ ʒi. recepi olei ʒij.ß. aquæ gr. v. salis gr. ij. pulveris residui circiter gr. ij. reliqua gr. ij. deficiunt, partim allinendo ad latera, partim exhalando, oleum et sal ejusdem indolis fuerunt, quam oleum ac sal volatile succini.” Vide *Phil. Transf.* No. 435. (N. B. Should it not be gr. i. in one of the above weights? It is gr. i. of powder in *Pb. Transf. Abridg.* vol. ix. p. 36.)——The quantity here being too small, the Royal Society put two chymists upon repeating the process, viz. Mess. *John Brown* and *Ambrose Godfrey Hanckewitz*. Mr. *Brown* from ambræ ʒxij. mixed with tobacco-pipe clay, had a transparent phlegm, a brown spirit which did not effervesce with alcalies, and oleum duplex smelling like ol. succini; but no volatile salt. (ε) Mr. *Godfrey* distilled ambræ ʒij. with arenæ purissimæ ʒiv. twice, and both times got a clear oil and bituminous residuum. The oil rectified gave “Phlegma saporis grate subacidi, quasi aceti dilutioris; deinde oleum limpidum, balsamicum, bituminosum, petroleo simile.” He analysed it also a third time per se, and had from ambræ ʒß. the same principles; and from the residuum calcined terræ albæ salinæ gr. iij. which effervesced with acids, and run per deliquium in the air; but could obtain no volatile salt, neither any phosphorus from the residuum of the two former operations. “Cum ex carbone duarum primarum operationum, nullum salem volatilem, nullum elicere potuerit phosphorum, pronunciat certissime ambram nec animale quid nec excrementum animalis esse; phosphorum enim ex omnium notorum animalium excrementis obtineri posse, ample explicuit.” *Pb. Transf.* No. 428. “Ambram igitur statuit esse bitumen ad succinum proxime accedens.” Vide *Pb. Transf.* No. 435. p. 437.—Sed unde sal fixum?

Now is it not somewhat strange, that none of these gentlemen who analysed ambergrise, should be so exact as to mention the quantities of the principles it yielded, or the proportions they bore to one another, or to the concrete itself, except Dr. Newman? And also that the analyses should differ so much from one another? I wish a sufficient quantity of genuine ambergrise were distilled with more accuracy. In the mean time, however, I think it may be inferred from these analyses, that there is a considerable agreement betwixt ambergrise

bergrife and amber; that neither of them are animal productions; and, upon the whole, that both are most probably mineral sulphurs.—It is pretty remarkable, that notwithstanding the difference betwixt them in colour, consistence, specific gravity, &c. the same general name amber, first used to denote ambergrife by *Ætius* (qui floruit circa A. D. 500.) should have been given also to succinum: and that ambra and succinum should be made species of the same genus by *Avicenna* and *Simcon Sethi*, so early as the eleventh century; who were both of opinion that ambra or liambar was a manatio fontis in mare. Vide *Avicen.* l. 2. tract. 2. c. 63. p. 105. C. & *Geoff.* i. 161. I do not indeed find in *Ætius* ambra among his catalogue of simples, but he has it in several compositions, e. g. in hygromyrum or ung. liquidum, in the suffumigium moschatum, suffumigium moschatum in ecclesia usurpatum, &c. Vide *Tetrab.* iv. *Serm.* iv. c. 114, and 122. p. 838, and 840. And in chap. 122. ambra is mentioned six times; the last of which is in the suffumigium Dominae Romulae, in which are ambra ꝑiv. succini ꝑi. mosch. ꝑiv. &c. So his succinum or electrum (Vide *Tetrab.* i. *Serm.* 2. c. 34. p. 69.) and ambra are here different simples.

For the various conjectures or opinions of the ancients as to the origin of ambergrife, I refer you to *Justi Fidi Klobii Ambrae Historia* (Wittenbergæ 1666 in 4to) who therein refutes seventeen concerning it, and espouses one as little probable as any of the rest: it is that of *Ferdinand Lopez de Castagneda*, who believed it to be the dung of a large bird, called in the Maldivies *Anacangrispasqui*, which, feeding on odoriferous herbs, and nestling on sea rocks, leaves there its dung *ambergrife*; which is white on the rocks, and then best; gray when driven by tempests into the sea; and black after that having been devoured by great fishes, unable to digest it, it is vomited up again by them. Vide *Bib. Pb.* i. p. 44,---53. *Clus. Exot.* p. 148. But two later opinions I cannot pass, without enquiring whether the arguments advanced for proving either of them are conclusive, or determine the controversy.

The first is that ambergrife is originally wax, or honey-combs. This opinion was first advanced by *Petrus Borellus* in his *Hist. and Observ.* &c. (Cast. 1652, and Parisiis 1656. 8vo. centur. iv. *Observ.* 66.) afterwards mentioned by Mr. *Monconys* (*Voyages de M. de Monconys à Paris* 1695. 12mo.) *Jean Baptiste Denis* (*dans Le Journal des Savans l'an* 1672.) *Pomet* and *Lemery*. The principal arguments for it, are that pieces have been found half ambergrife and half wax; and others ambergrife without, and wax and honey within. Vide *Lem. Dist.* p. 22. *Kempfer* denies the fact; “Falsus est Denisius, says he, qui favos cum cera et melle (cur non et apibus etiam?) illatusse, relatori suo credidit.” (*Exot.* p. 632.) and endeavours to confute this notion, by observing, that ambergrife is found where there are no bees near; as there is no ambergrife in places, where there is the greatest plenty of bees: that no such hives were ever found near the sea, the bee being too wise to chuse for its habitation places exposed to tempests: that honeycombs agitated on the sea would separate, and not run together in lumps: that “favi cum melle suo, uestionis ope ubicunque inspissati, ejusdem substantiæ coagulum referunt; ambræ vero ex venarum subterræ” nearum diversitate multa varietas est, et suis quoque regionibus propria, &c.” ut *supra*: that varia conchylia are found in it; but bees or honeycombs never:



and that it is inconceivable how such quantities of honeycombs could be brought together as would afford a mass of ambergrise of 128 pounds weight. These are indeed strong arguments against this opinion; but Mr *Kämpfer* seems to be somewhat rash in denying what appears a real fact.

For anno 1727 Dr. *Alexander Wright* who attended the first course of lectures I gave on the *M. M.* (which was in Nov. 1720) favoured me with a very great curiosity of this kind; which in his letter, dated 30th May 1727, he says, "is a piece of some ambergrise that was driven from the coast of Florida, by a violent North wind, on that of the north side of Cuba, a few miles above the harbour of the Havannah, where I then was: I picked it out of a great deal, which an apothecary there had bought of the fisherman that found it, at the sea side. It appears to have a waxy substance mixed with it, which I assure you was not done by the apothecary, for I had it of him just as the fisherman found it." It is of an English ounce weight, wanting gr. xx. two inches and  $\frac{1}{4}$  long, and  $1\frac{1}{2}$  inch broad, and an inch thick, viz. where longest, broadest, and thickest, for it is of an irregular figure. On one side are the impressions of a cutting instrument, as if by repeated strokes it had been separated from a larger piece. The other side is more rough, with some small round grains on it, of the size of poppy-seeds, as if it had been blistered with heat. A part of one of its edges, broken off, discovered the difference of its consistence; for it is of an ash-colour on the outside, and through the external crust, which is in some places an eighth part of an inch thick or more on the rough side, but not half so thick on the side bearing the marks of the instrument. Within this crust it is of the consistence of wax, semi-pellucid, of a greenish or horn colour, of a soft or fattish taste, and little scent, although the crust smells agreeably of ambergrise. In a word, this specimen seems to have been originally wax, but wax refined or melted, not honeycombs, only altered by the sea. But how the sea, &c. make such a change on it, I know not.—Yet hence it cannot be inferred, that all ambergrise comes of wax, for the reasons above mentioned. Does this ambergrise agree with the common in its analysis, or with wax? Is it a true ambergrise?

The other opinion is that ambergrise is formed in the spermaceti-whale's bladder, like a calculus. In October 1724 Dr. *Boylston* gave a short account to the Royal Society, of ambergrise found in cysts in some bull spermaceti-whales, in one to the quantity of lbxx. and in smaller quantities in several others; but this was not in one of a hundred of them. He says it was of a strong offensive smell when first taken out. Vide No. 3. *supra*. In March 1725, *Paul Dudley Esq*; presented the same R. S. with an Essay on the natural History of Whales found on the Coast of Newfoundland; wherein he almost confirms Dr. *Boylston's* account, but not from his own knowledge, for he had his information from Mr. *Prince* of Boston, who took it from Mr. *Atkins* of Boston's own mouth. N. B. Mr. *Atkins* used the whale-fishery for 10 or 12 years together, and was one of the first that went out a fishing for the spermaceti whales, about the year 1720 (in *Martin's Abridg.* it is 1670) when he began to discover the ambergrise.—“The ambergrise, says he, is found only in the male spermaceti whales, and consists of balls or globular bodies, of various sizes, from about 3 to 12 inches diameter, and from a pound and a half, to 22 pounds in weight; lying loose in a large oval bag or bladder of

of 3 or four feet long, and 2 or 3 deep and wide, almost in the form of an ox's bladder, only the ends are more acute, with a spout running tapering into, and through the length of the penis, and a duct or canal opening into the other end of the bag, and coming from towards the kidneys. . . This bag is almost full of a deep orange coloured liquor, not quite so thick as oil, and smelling strong or rather stronger of the same scent with the balls of ambergrise, which float in it. The balls seem to be pretty hard, while the whale is alive, there being many times found, upon opening the bag, large concave shells of the same substance and consistence, that have scaled off from them. And the balls themselves seem to be composed of several distinct coats, inclosing one another, something like the coats of an onion. Mr. *Atkins* never found above four balls in a bag, and in the bag where he found one that weighed 21 pounds, which was the largest he ever saw, there was no other. The balls are not to be found in every spermaceti whale, for to one that has them, two wants them, having nothing but the orange coloured liquor in their bags. . . Mr. *Prince* apprehends the bag aforesaid, to be the urinary bladder, and the ambergrise ball to be a certain concretion, formed out of the greasy odoriferous substance of the liquor aforesaid contained within it." Vide *Pb. Transf.* No. 387. p. 256. or their *Abridg.* Vol. 7. p. 423.

This most evidently is not a new account of the genuine ambergrise, but an account of a *new* ambergrise. And cow-dung may be reckoned a third sort with as good reason. A figured, globular, coated, or bulbous ambergrise, is indeed a curiosity I believe never before heard of among the learned. But I am at a loss to find in what it agrees with the old ambergrise, and how it came by that name. It ought to have been called lapis, calculus, bezoar, *pila ceti*, or any thing rather than *ambragrisea*. If there was any ambergrise in these balls, or in the urine they floated in, it might be owing to the animals eating it: and perhaps nature has taught them, that ambergrise is a lithontriptick, or a remedy to them for the stone in their bladder: the empty shells many times found there, makes the conjecture in nowise extravagant.—Though one would think that every body in the least acquainted with ambergrise must see the mistake of these gentlemen, yet even *Dale* himself, in the last edition of his *Pharmacologia*, gave into it; and *Newman* was at the pains to refute it, and at the same time to favour the publick with a pretty long dissertation on ambergrise, in the *Pb. Transf.* (an. 1734.) No. 433, 434, 435. (You have all the three papers conjoined in the *Abridgement*, vol. 9. a p. 339, ad p. 366. with Mess. *Brown's* and *Godfrey's* analytes annexed, a p. 366, ad 371, all translated into English.) In No. 433. and 434. are contained the various sentiments of authors concerning ambergrise, with his own judgment on them; and his own opinion concerning it. "Ego perinde credo, says he, *ambram griseam*, "identidem prout *ambra citrina*, 1. *Ex terra in mare provenire*.—2. *Eam non sicut naphtha vel petroleum, sed jam subcrassiori, flexili et probabiliter sæpe adhuc viscida et tenaci consistentia, in mare provenire*.—3. *Quod sub prima concretionem, vel formationem ejus, bitumen liquidum, vel species naphthæ concurrat, et mixtionem simul constituat*.—4. *Quod magna frustra simul quidem generari possunt; ut plurimum tamen in principio tantum paucum quoddam simul oriatur, cui frustulo rursus novum quoddam, vel*

"luti



“ luti stratum superaccrescat, vel sese apponat; adeoque hoc modo, per  
 “ plura et recentiora superstrata, ambragrifæa nunc in rotunditate, nunc  
 “ in longitudine, vel etiam in plane inæquali forma augeatur, semper  
 “ adhuc aliquantum mollis; unde variæ res ei agglutinari possunt: interim,  
 “ de tempore ad tempus, sensim induretur, circiter usque ad consistentiam  
 “ ceræ . . . Itaque pleraque ambragrifæa sub forma stratorum vel corticum ap-  
 “ paret.” In No. 435. he treats of the differentiæ notæ bonitatis, analysis,  
 præparata, &c. ambragrifææ.

Upon the whole; though the true ambergrise is most probably a mineral sulphur, yet it seems neither to issue from springs or fountains in the sea, in a liquid form like petroleum, and harden afterwards, as does the asphaltum; nor that there are veins, strata, or hills of solid ambergrise, whence by the force of the waters agitated by tempests, it is broken off in fragments. For if it springs from its source in a liquid form, considering the constant motion of the waters, how could such large masses of it come together? how could stones, &c. be inclosed in it, before it came ashore? and why should it be found in greater plenty in storms than in calms? to say nothing of its texture. And on the other hand, were it as solid below water as it is above it, or as we have it, how could it inclose shells, stones, &c. which are sometimes in it? It is not therefore improbable, that ambergrise in its veins or matrices is neither fluid nor solid, but soft, or of a consistence between the two: such is the maltha and bitumen Judaicum on the lake; and in this state *Kempfer* says it is sometimes found. Thus it may bring from the bottom of the sea, shells, stones, &c. as well as enwrap or surround them ashore. In this state there may be strata of it, whence, from pressure, or some other cause unknown to us, are squeezed out sometimes greater sometimes smaller quantities; as there are, even here, veins of a softish bitumen, as well as springs of a thick pisselæum. Perhaps ambergrise may grow in its proper matrices. How could the fountains of Asphaltos, or springs of Petrolea, continue always to furnish such quantities of these bitumina without a continued production of them, or a constant pressure of their large receptacles in the bowels of the earth? To force their ascent in sufficient quantities, some such thing seems necessary, tho' I cannot pretend to account for it. “ Id adhuc addendum reperio, quod oleum  
 “ album petrolei, mixtum cum spiritibus mineralium acidis, exhalaverit odo-  
 “ rem ambræ-grisæ omnino similem. Vid. *Mem. Acad.* 1726. p. 105. An  
 “ aliquid docebit experimentum illorum, qui scribunt, quod si stercore humano  
 “ affundatur quantitas sufficiens aquæ, misceatur in pulvem spissiorim, ponatur  
 “ in B. M. vel B. vaporoso, beneficio diuturnæ digestionis, sætor exeat, et suavis  
 “ ambræ percipiatur odor?” Vide *Etmul.* i. p. 797. *Rieger* i. p. 470.  
 “ Ambar . . . Arabibus quidem dicitur. Sed . . . Æthiopica lingua, ita quo-  
 “ que vocat balenam. Quo magis accedo ad eorum sententiam, qui ita dic-  
 “ tum volunt quod vulgo persuasum sit balenæ semen esse; non sane quod ve-  
 “ rum sit, sed quia id falso vulgus putavit, ideo a balena quæ dicitur ambar,  
 “ ita succinum vocarunt.” *Clus. Exot.* p. 243.

## S E C T. II.

Ambergrise is a mild aromatic and balsamic sulphur, or solid balsam; and reckoned anodyne, cordial, antiseptic. It is said to cheer the spirits, quicken the senses (internos & externos) and repair the decays of nature: and is recommended in vertigoes, apoplexies, palsies, syncope, nervous disorders, &c. but especially in such lowness of the spirits, and weakness of the functions, as commonly accompany old age; so as to be instrumental even in prolonging life itself.

“Calfacit, siccit, resolvit, cor cerebrumque roborat, spiritus vitales & animales, sulphurea sua ac suavi exhalatione, suscitatur, reficitque. Unde haud rarus ejus usus est in globulis illis fragrantibus, ad infectum acrem corrigendum, spiritusque ab infectione tuendos, formati, quos inde poma ambræ vulgus appellat. *Præp.* 1. Essentia ambræ. 2. Species diambæ. 3. Poma ambræ. 4. Ambra essentificata.” *Schrod.* p. 519.

1. It is not acrid, but of a soft oily aromatic taste, and very sweet fragrant, and agreeably perfuming smell; yet it keeps well. I have a piece about thirty years old, which is not sensibly weaker than when I first got it; and may be said to consist of very subtle parts, a small grain of it being able to perfume, and give a rich flavour to more than a bottle of any spirits which are drank.—  
2. It melts, flames and consumes entirely in the fire; dissolves in essential oils and spirits, so as to leave not a twentieth, sometimes only a fortieth, part of fæculencies undissolved. In its analysis it comes very near to succinum.—  
3. It is said to increase the intoxicating quality of spirituous liquors. “Ambar in vino maxime inebriare scribit *Simeon Sethi.*” *Vid. Monard.* l. c.—  
4. Of all the perfumes ambergrise is the least hurtful, by its scent, to hysteric people; because such sweet smelling substances have thus sometimes been observed, or imagined, to cause or increase hysteric paroxysms, a general prejudice against the use of them, has for some time, almost every where in Europe, prevailed: though I am old enough to remember when not only almost every lady, but even the beaux were perfumed; and it is an old opinion, that such sweets, musk itself not excepted, were rather antihysteric, when taken inwardly. “Quæ hystericas mulieres odore suo lædunt suaveolentia, eisdem utero ad mota juvant.” *Geoff.* i. 164. But this is going into the old error of their attracting the uterus.—  
5. Internally taken, ambergrise is said to comfort the spirits, quicken the senses, give youth to old age, & ad venerem stimulare. And really it seems to rarify the juices or relax too tense fibres, and correct acrimony, or contribute to the preservation of the natural balsamic softness or sweetness of the blood; and hence it may be called cordial and analeptic, agreeing in many things with saffron; and also anodyne. It is observed that the great men of *Barbary*, who make much use of ambergrise, generally live longer than the vulgar who cannot afford it. . . *Verulamius* in *Hist. vitæ & mortis* scribit quod, “Pharmacopœus quidam *Calecutiæ* ex usu ambræ ad 160 annos vixisse perhibetur, atque nobiles in *Barbaria* ex ejusdem usu, longævi repantur, cum plebs brevioris sit ævi.” Et alibi, “Ambram, crocum, &c. inter medicamenta ad naturam opii accedentia recenset: atque ambragrisea, inquit,



"inquit, ex optimis est, ad spiritus demulcendos & confortandos." *Boswel. Diff.* p. 41. "Ambarum stomachicis miscetur, cor & cerebrum proprietate roborat, & syncopen tollit, sed ebrietatem accersere dicitur permixtum vino. . . Senibus, & natura frigidioribus, accommodatius, quam juvenibus." *Fernel.* p. 266. "*Riverius* ambarum commendat ad ventriculum roborandum, & tanquam specificum in fame canina. Idem remedium in melancholia hypochondriaca, post debitam purgantium & diluentium adhibitionem, proponit, ad spiritus & calorem nativum vivificandum, & cor exhilarandum." Vide *Geoff.* i. 164. *Kempfer's* secretum magnanimitatis, which he learned of a *Japan* physician, is nothing but pills composed ex extracti opii p. i. & ambrae p. ii. Vide *Amanitat. Exot.* p. 638.

"De ambra nota, ait *Etmuller* iii. p. 358, quod non habetur par remedium, in firmandis viribus animalibus, & roboranda memoria, omnibusque mentis actionibus; adeo ut nihil æque fulciat senes labescentes. . . Sed caute usurpanda in juvenibus & parce. Vim enim aliqualem inebriativo-narcoticam habet conjunctam; ratione cujus etiam revera spiritus admodum refo-cillat, & fervidos reddit, sed postmodo sensim sensimque virtute inebriativa, stuporem, & omnimodam fatuitatem & stultitiam infert. Cauti ergo simus in usu ambrae, ac detur potius sæpius quam nimia dosi; interdum senibus ejus usus concedendus, sed abusus fugiendus; quoniam certum est, quod stupiditatem etiam inferat totalem in senibus." *Reiger* i. p. 472. who adds, "Hinc intelligimus cur effectum somniferum ediderit essentia ambrae, cum succo rosarum per fermentationem parata, ad gut. 60. exhibita in vino Rhe-nano." *Eph. Nat. C. D.* 3. a. 9. o. 254. Is not *vinum* inebriativum also? And *opium* narcoticum? Abususque illorum semper fugiendus est.

From the lately observed good effects of musk, in some obstinate and dangerous diseases, perfumes are like to recover their reputation soon. Vide *Moschus*. "Novi magistrum equitum, qui ab odore moschi in animi deliquium laberetur. Eadem de moderno Gallorum Rege *Ludovico* XIV, nempe suaveolentia cum non posse ferre, una cum aliis ejusdem idiosyncrasiae viris, narrat *Dolæus Encycl. Med.* lib. 5. p. 867." *Miscel. Cur.* Dec. 3. An. 3. App. p. 108.

### S E C T. III.

Ambergrise may be given to gr. x: but gr. iv. are seldom exceeded. There is no preparation of it, nor is it used in any of the compositions of our Dispensatory.

"The dose is gr. i. to iv. in substance; a gut. vi. ad xii. in essence." Vide *Lemery Chym.* 564—65. "Dosis, si in substantia exhibeatur, instar pisi minoris, vel a gr. i. ad viii. per se in ovo sorbili, aut in vino, vel cum saccharo & pulveribus aromaticis; vel ejus tinctura cum spiritu vini extracta, a gut. i. ad x." *Geoff.* i. p. 163. Tinctures and essences of ambergrise are certainly powerful medicines, and easily made.

"The tincture (made by infusing and digesting it in sp. vin. rect.) filtered, is at first of a deep yellow colour, but in winter, in 9 or 10 hours, it congeals in part, and grows white like grease. It has a very sweet smell and agreeable taste; and is not so apt to cause vapours as the essence (prepared

“ with ambergrise, musk and civet) is. Ambergrise dissolves almost entirely “ in sp. vini, nothing remaining but a very small quantity of an useless *matiere mielleuse*.” *Lem. Chym.* p. 565.

“ Non tota ambari substantia in spiritu vini solvitur, sed nigra, piceaque “ materia ab eo intacta remanet. Solutio vero sedimentum album & nebulo- “ sum post aliquod tempus deponit, quod paulatim magis magisque coagula- “ tur. . . Hoc coagulum exsiccatum, in terram foliatam, splendentem, sperma “ ceti haud absimilem, convertitur.” *Geoff. i.* 162.

“ Hactenus pro certa, & explorata re habitum & creditum fuit, spiritum “ vini rectificatum, per se ambra-griseum non solvere . . . ob non animad- “ versam hactenus, ut conjicio, parvam tantum quandam encheiresin . . . Ego “ semper ita ambrae ʒij. in spiritus vini rectificatissimi (simplicis, tartarisati, “ vel oleo-aromatico imprægnati) ʒj. dissolvi, & tantummodo impurum istud, “ quod ambra non fuit, pondere gr. ii. vel etiam gr. i. tanquam residuum in “ fundo vitri reperi.” *Vide Newman. Ph. Transf.* No. 435. His encheiresis is only giving the infusion such a heat, by degrees, as will make the spirit boil. He says, the solution takes no tincture from the ambergrise; and if it have any, it is from the spirit used, tintured with tartar, or oils.—*Vide Essentia ambrae. Schrod.* p. 512. *Essence de ambergris. Lem. Chym.* p. 564. Ambari tinctura composita. *Geoff. i.* p. 163.

“ Liquido ex prædictis patescere arbitror (viz. from its not dissolving in “ spirit of wine, unless it boil) quod in ventriculo nullo plenaria ambra, in “ substantia assumptæ, solutio; sed aliqua saltem, longe tamen copiosior, “ quam apud succinum, partium subtiliorum extractio contingat; & quod “ medica igitur activitas unice a separatæ & extractis hisce particulis tenerio- “ ribus expectanda sit.” *Carteusier ii.* p. 418. But this is certainly an ill- “ founded assertion, and inconsistent with observation. Why should one part of it, since it is homogeneous, be dissolved, and not another?

## B I T U M E N.

## S E C T. I.

Bitumen, bitumen Judaicum, asphaltos, *offic.* Judaicum bitumen, *Matth.* p. 111. Asphaltos, *Schrod.* p. 516. Bitumen Judaicum, *Worm. Mus.* p. 30. *Charlet. Fess.* p. 14. *Aldrovand. Mus. Metall.* 381. B. nigrum crassum, *Kentm.* 21. B. Judaicum asphaltum, *Mont. Exot.* 12. Asphaltos & bitumen Judaicum, *offic. Dale* 24. Asphaltos, *Dioscorides l. i. c. 99.* p. 53. “ Asphaltum “ Dioscoridis, bitumen Judaicum, *offic.* Karabe Sodomæ, *Serapionis*; gum- “ mi funerum, *ejusdem.* Mumia, *quorundam.*” See *Geoff. i.* 160. Jews-pitch. —This is a hard, brittle, black, shining mineral sulphur, of little taste or smell, unless heated or burning, when its scent is bituminous and strong: It is found on the *Dead-Sea*.

Such bitumens, more or less solid and hard, many countries produce, but that which is brought from Judæa is most esteemed. “ Asphaltos Judaica cæteris “ præstat. Probatur purpuræ modo splens, odoris intensi, ac ponderosa. “ Nigra autem ac fordida damnatur; admixtâ siquidem pice adulteratur.



“ Nascitur in Phœnice, Sidone, Babylone, & Zacyntho. Gignitur & in  
 “ agrigentino Siciliae agro liquidum fontibus supernatans, quo ad lucernarum  
 “ lumina, olei vice utuntur, quodque siculum oleum falso appellant: nam-  
 “ que liquidæ asphalti genus est.” *Dioscorides* l. c. From this description  
 some infer that we have not the true bitumen Judaicum. But since there were  
 annually (before 1688) imported from the Levant, to Marseilles between  
 2 and 300 lb. weight of *bitume de Judée* on account of its use in medicine, (vide  
*Savary Dict.* iii. p. 431); and of it are made the fine black varnishes, which  
 so well imitate those of China, (vide *Savary Dict.* i. p. 164), I don’t see why  
 we should not have it genuine, especially since there is a great plenty of it on  
 that lake.

“ Legitimum ad nos raro advehitur. Illud enim Dioscorides scribit eligen-  
 “ dum esse, quod purpuræ modo splendeat, nigrum vero & sordidum reji-  
 “ ciendum, at vero quodcunque nobis adfertur nigrum est. Attamen si in frus-  
 “ tula tenuia diffiliat, nitor quidam croceus percipitur adverso lumine, quem  
 “ fortasse Dioscorides designare voluit. Quidam pro genuino bitumine Ju-  
 “ daico pissasphaltum excoctum, & induratum nobis mittunt.” *Geoff.* i. 160.  
 And *Cramer* says, the carbo a destillatione succini is sold for it: but as the smell  
 will discover the pitch easily, so perhaps the hardness and colour the carbo. Vide  
*Savary Dict.* i. 165. The difference however is not considerable, as you will  
 find by carefully comparing them. — “ Asphaltis nihil præter bitumen gignit,  
 “ unde & nomen. Nullum corpus animalium recepit; tauri, camelique  
 “ fluitant. Inde fama nihil in eo mergi. Longitudine excedit 100 mille  
 “ passuum, latitudine maxima 25 implet, minima sex.” *Plin.* l. 5. c. 16.  
 p. 102. According to *Josephus* this lake is from south to north (580 stadia,  
*i. e.*)  $72\frac{1}{2}$  miles, and from west to east (150 stadia, *i. e.*)  $18\frac{3}{4}$  miles. See *Galen*,  
*Simpl.* l. 4. c. 20. p. 30. who says a great deal of the water of this lake.  
 “ Vocant autem eum, *says he*, Sodomeum, a circumjacentibus stagnum mon-  
 “ tibus, quos Sodoma appellitant.” See also *Thevenot* in *Harris, Collect.* 2.  
 p. 439. The asphaltos issues from springs in the bottom of the sea; for we  
 read in *Genesis* (ch. xiv. ver. 3. and 10.) that the vale of Siddim, which is now  
 the salt-sea or lake, had in it (φρεατα ασφαλτος, bituminis puteos, or) slime-  
 pits; and (ch. xiii. ver. 10.) was a fruitful and pleasant plain, before the de-  
 struction of the wicked cities in it by fire and brimstone from heaven. “ The  
 “ quality of this lake, and of the soil about it, is so contrary to all other lakes  
 “ or inland seas, that no philosopher can give an account of it, like that which  
 “ *Moses* has given us, *Genes.* xix. 24. He that will read *Tacitus*, *Pliny* or *Dio-*  
 “ *dorus*, may be satisfied of this. The country where these cities stood, being  
 “ become a pan or receptacle of such a strange moisture, that it may be called  
 “ liquid pitch, rather than water, the noisome steams of which blasts all that  
 “ grows of itself, or that can be sown about it. Nor does Jordan and all the  
 “ rivers that run into it, at all alter it: but it infects all their waters, with the  
 “ loathsome qualities of those dregs of God’s wrath (as *Dr. Jackson on the Creed*,  
 “ b. 1. c. 15. expresses it) which first settled in it at this overthrow; of which  
 “ it remains an everlasting monument. *Strabo* (l. xvi.) attributes the destruc-  
 “ tion or desolation of that country to an earthquake, which made an eruption  
 “ of these bituminous waters, whereby it was turned into a lake: whereas  
 “ *Tacitus* (*Hist.* l. v.) better informed, says these Judaical cities, as he calls  
 “ them,

“ them, *fulminum jactu* (or *iētu*) *arsisse*, were burnt by the stroke of thunder-bolts from heaven; and a little after, *igne caelesti flagrasse*, were set on fire and consumed by lightning, with which fell such abundance of bituminous stuff, that the valley, which had only some pits of bitumen in it before, became a lake of it.” Thus *Bishop Patrick, Comment on Gen. xix.*

“ Bitumen (quasi *πιτωμα*, a *πιτω*, pinus; vel quasi *πιττωμα*, a *πιττα*, pix. Al. quod vi tumeat e terra forte ab *επιθυμα* suffimentum, quod in suffitu ut thus & sulphur adhiberetur.” *Dictionary Cantab.*) is sometimes used to denote a mineral sulphur in general; sometimes restricted to this kind of them; whether solid, soft, or liquid; as is also the asphaltus, *ὁ καὶ ἀσφαλτος*, & *τὸ ἀσφαλτον*.

“ Quamquam vocabulum bitumen nihil aliud significat, quam mixtum quoddam minerale, tamen plurimi historię naturalis scriptores illud ad hanc specificam significationem redigerunt, quod ejusmodi mixtum proprie sit, pinguedo terrę, tenax, facile urens, cum quo charactere etiam ambergrisea perfecte convenit.” *Newman. Ph. Transf. No. 435. p. 421.* “ Quia rarissimum est, nostratibus ejus loco pissasphaltos in usu est.” *Schrod. 516.*

## S E C T. II.

It seems to be antiseptic, drying and cicatrising; is called cephalic and uterine, and perhaps partakes in some degree of the virtues of brimstone. We use it only in the theriaca. Is it better than any common bitumen?

“ Pissasphaltos calf. 3. succ. 2. doloribus capitis, aliisque ejus morbis, a frigidityte obortis, medetur.” *Schrod. p. 734.* “ Discutit (asphaltos), glutinat, emollit, sanguinem coagulatum resolvit, & menses ciet.” *Dale p. 24.* “ Refertur inter emollientia, resolventia, & glutinantia; suffitus ejus hysterici prodest.” *N. Belg. 44.* “ Bitumini Judaico vis discutendi, emolliendi, glutinandi, sanguinem coagulatum resolvendi, & menses ciendi tribuitur. Usurpatur in compositione theriacę, & pulveris ad implendas cadaverum cavitates. *D. Charras.*” *Geoff. i. 161.*

It consists of a mineral oil, some acid spirit, and much earth, and probably is not easily digested. *Dioscorides* attributes many virtues to all the bitumina. “ Bitumen omne, says he, discutit, glutinat, emollit, ab inflammatione tueretur;” and commends them internally in female obstructions, coughs, asthma, bites of serpents, fluxes, dysenteries (grumos sanguinis solvit); and externally for hysteric fits, pains, gout, &c. Vide l. 1. c. 101. p. 54. Here are included both the solid and liquid bitumens, which have pretty much the same virtues of sulphur, as he delivers them l. 5. c. 124. p. 375. The theriaca owes little to the asphaltos, (unless it be in its blackness,) for there are in theriacę *℞ xix.* and more only bitumen. Judaic. *ʒij.* for which our *Pharmacop.* (ed. 1744) and the last *Pharmac. Lond.* prepared succinum to be taken.—It is true a sort of petroleum may by distillation be drawn from it; but it may also be drawn from our carbonaceous fossiles, some of which differ not much from the lapis gagates.

Gagates & succinum nigrum offic. Dale 23. Gagates, *De Boet 335. Worm. Mus. 31. Merret. Pin. 217.* Lapis gagates, *Charlet. Fossil. 14. Calceol. Mus. 355.* Gagates,



Gagates, *Aldrov. Mus. Metal.* 418. Jet. — This is a bituminous black fine grained stone or coal found in quarries in England, Germany, France, &c. Of no use in medicine.

“Materia gagatis similis videtur fœcibus, quæ extillato succini oleo, remanent in retorta. Hæ enim si diutius, omni oleo extillato, assentur, splendent picis instar, ac tandem refrigeratæ justo modo, in gagaten permutari posse videntur.” *De Boot*, p. 336.

“Bitumen eousque vi naturæ perfectum ut evadat nigrum, durum, terrenum, scissile, politum, graveolens, resplendens, gagatem lapidem, vel Thracium Nicandri conficere videtur.” *Boerb. Chem.* i. p. 49. “Lapis Thracius . . . traditur accendi aqua, oleo vero restingui, id quod etiam bitumini accedit.” *Dioscorid.* l. 5. c. 147. 386. “Est & alius lapis cujus meminit *Nicander*, hunc in modum.

“Si lapis uratur candenti Thracius igne, et

“Post madesiat aqua, flagravit totus; at idem

“Mox oleo affuso, penitus restinguitur.

Vide *Galen. Simpl. Med.* l. 9. p. 68.

“De lapide Thracio narrat *Dioscorides* ex aliorum relatione, aquâ accendi, oleo vero restingui; quod quidem in fabrorum officinis quotidie observare licet, qui aquam in accensos carbones spargunt, ut nimis expansum calorem reprimant, ac in centro vividiores focum efficiant.” *Geoff.* i. 171. Is this to kindle with water, or extinguish with oil? Vide *De Boot*, p. 337.

## BITUMINA LIQUIDA.

### S E C T. I.

1. Naphtha, petroleum *offic.* Petroleum (ut & naphtha) *Worm. Mus.* 30. *Charl. Foss.* 13. *Schrod.* p. 516. Naphtha alba & nigra, *Kæmpfer. Amen. Acad.* 274. Naphtha *Dioscorides*; petroleum *offic.* *Geoff.* i. p. 156. Petroleum *offic.* Naphtha *offic.* *Dale*, p. 24. Rock-oil, or oil of petre—is a very fluid, pellucid light mineral oil, or liquid bitumen, of a white, yellow, red or brown colour, of a somewhat hot, penetrating, bitterish taste, and fragrant bituminous smell, sometimes more, sometimes less agreeable.

This oil is found of all these colours in Italy, Sicily, some islands of the Archipelago, &c. but Italy, and in particular Modena, is famous for the best sort, *i. e.* the whitest, most fluid and most inflammable, called petroleum mutinense dal monti Cibitto, by *Cæsalpinus*, l. *Metal.* 31. *Hoffman* 536. and by *Savary*, *DiÆ.* ii. p. 371. The naphtha of Italy flows from rocks along with water. “About 28 miles from Modena, near Pauli-Castle, issues out of a mountain a spring of petroleum.” *Ray. Harris Coll.* ii. 564.

“Petroleum is extremely inflammable, and burns in water. It issues from the clefts of certain rocks, in several places, but especially in Italy, in the dutchy of Modena, in Languedoc near Beziers, and some islands of the Archipelago. Though there are petrolea of different colours, as red,  
“yellow,

“ yellow, green, white, and black ; yet the druggists know them commonly, only by the last two names. The white they call the naphtha of Italy, the black the petroleum. The naphtha runs from a rock in the duchy of Modena, and is conveyed by copper pipes into large copper (*chauldieres*) kettles. It admits of no mixture ; so cannot be counterfeited. It takes fire as easily almost as gunpowder. The green and yellow are not to be seen in France.” Vide *Savary, Dict.* ii. 371. The white petroleum is specifically lighter than any other known liquor, the purest alcohol not excepted ; yet perfectly mixes with the essential oils of vegetables. Dropped into water it spreads over its surface to a surprising distance, and exhibits a variety of colours. The strongest frost makes no impression on it. The mineral acids, when highly dephlegmated, readily unite with petroleum, and give it a pretty thick consistence. Highly rectified spirit of wine has no effect upon it, even after a long digestion.” (*Cum sp. vini difficile conjungitur & miscetur ; pinguior enim est petrolei consistentia.*” *Geoff.* i. 157. *Lewis Pharm.* p. 90.)—*N. B.* British oil. (*New Disp.* 181.) Unde ? Has the oil succini these properties ? Vide *Succinum*.

“ Vocatur & quædam (asphaltos) quoque naphtha quæ est asphalti Babylo-niæ colamen, colore candidum ; invenitur etiam nigrum. (Vim habet ignis rapacem adeo ut etiam e longinquo illum arripiat.)” *Dioscorides* l. 1. c. 101. p. 54. *N. B.* The words included in ( ) are wanting in some copies, but *Oribasius* has it l. xi. p. 412. and it is true in fact. . . . “ Huic (naphthæ) magna cognatio ignium, transiliuntque protinus in eam undecunque visam.” *Plin.* l. 2. c. 105. p. 44. “ Narrabat mihi *Ill. Comes Hercules a contrariis Fer-rariensis*, suo quodam in prædio se puteum habere, in quo una cum aqua petroleum destillat e terræ meatibus. At qui cum rimæ quædam in putei fundo hiantes exortæ essent, e quibus petroleum sensim labebatur, cementarium fabrum se conduxisse dicebat, qui rimas diligenter obsrueret : at cum artifex sine lumine id præstare nequirêt, laternam exposulasse, eamque illi in puteum demissam esse perquam diligenter oclusam ; verum paulo post evenisse affirmabat, ut petroleum ignium rapax, accensis putei parietibus, & impetuoso admodum excitato vapore, non solum cementarium artificem illum, perinde ac e bombardâ extinctum, sursum extra puteum ejaculasset, sed etiam putei tectum totum in aëra evexisset, accensis lagenis nonnullis petroleo pleniss, extra putei ostium existentibus, quarum igne adstantes quidam maxime læsi sunt. Hinc inique adducor omnino ad credendum nil aliud petroleum esse, quam naphtham, bituminis colamen, de quo scripsere Dioscorides & Plinius.” *Matthiol.* p. 112. Vide *C. B.* in *Matth.* p. 116. *Kæmpfer. Amen. Exot.* p. 116. *Worm. Mus.* p. 30.

Naphtha is made a Chaldean word. *Dict. Cant.* “ Suidas dicit esse medicum vocabulum, a Græcis vocari *Μηδίας ἔλαιον*.” *Scap. Lex.* “ A Nicolao Myrepso *μυροῦ τοῦ ἀγίου βαρβάρου*, oleum S. Barbari ; ab aliis oleum S. Catharinæ, oleum sanctum, & a nonnullis *ναφθα* & *ἀπθα*, ἀπο τοῦ ἀπτεσθαι, quod accendi significat, nominatum fuit.” *Geoff.* i. p. 156.

2. Oleum terræ offic. Oil of earth. *Dale* p. 24. Earth-oil—is of a deep red colour, transparent, thicker in consistence than petroleum, of a softer taste, and more agreeable smell. It comes from the East-Indies, is common in the Dutch shops : but whether it be native or factitious is uncertain.

“ Oleum.



“Oleum terræ est pellucido-rubicundum, odoris fortis, petroleum æmulantis, sed gravioris. Ante paucos annos nobis innotuit, ex India Orientale asportatum, ubi ex monte quodam effluere dicitur. Arthritide vagæ maximo est solamini inunctum.” *Schroder.* p. 517. “Oleum terræ *offic.* duplex est vel rubrum vel nigrum. Rubrum ex India Orientali adfertur, estque coloris pellucidi-rubicundi, odoris fortis, petroleum æmulantis, sed gravioris, inquit *Schroderus*. Attamen nobis a petroleo vel non differit, vel officinis nostris incognitum est.” *Dale.* 24. (See the 8vo edition, p. 55.) “Oleum terræ Judis, descriptum *Neubovio*, vix ad nos deductum, sed in Asia retentum a regulis; an sit petrolei vel naphthæ species, haud ita certo definiam. Id vero quod ex Indiis venale ad nos defertur hoc titulo, parari ex oleo nucum cocos presso, atque terris medicatis commisto, me docuit vir harum rerum peritissimus; adeoque vegetantibus id omnino adscribendum. An & Barbadenfium dictum oleum ita paratur.” *Boerb. Chem.* i. p. 50.

3. Pisselæum Indicum *offic.* *Dale.* p. 25. Petroleum Barbadenfæ, *Pb. Lond.* Barbadoes tar—is of the consistence of common tar, of a reddish-black colour, and bituminous taste and smell, neither of which are very disagreeable. It comes from the island whose name it bears.

This is certainly a mineral bitumen, and the very same with that which issues from the earth in a well, called on that account the Balm-well, about three miles south of Edinburgh, which therefore I name *Pisselæum Scoticum*; at least they are so like one another in consistence, colour, taste and smell, that I cannot distinguish them. This well has always an oily scum on the surface of its water; but no quantity of the pisselæum can be gathered till it is all drawn out. “Ex insula Barbados dicta adfertur, ubi sub aquis emergit, colore ex nigro rubescens, odoris gravis, consistentiæ picis liquidæ.” *Dale.*

4. Bitumen *offic.* Common fossil-pitch. *Dale.* p. 24. Bitumen fossile. *Aldrov. Mus. Metal.* 382. Bitumen vulgare pissasphaltum. *Mont. Exot.* 12. An pittasphaltum. *Dioscoridis*; pissasphaltum, & pix mineralis *offic.* Maltha *quorundam.* *Geoff.* i. 158. Common bitumen is of the colour and consistence of common pitch, but not shining; or coarser, found often here in seams of lime-stone.

It is of different consistences; not much thicker sometimes than the pisselæum, such is that called stercus diaboli, whereof there is plenty about Brunswick in Germany; and in Auvergne in France. Vide *Matth.* p. 116. and *Lem. Diët.* p. 372. It is sometimes almost solid. “Pittasphaltum . . . est bituminis species, rufa vel nigra, odoris fragrantis bituminosi, non ingrati, tenax, mediæ consistentiæ inter petroleum & bitumen, pici vulgari similis, quæ calore liquefit, frigore densatur, & flamma admota facile accenditur. Pittasphaltum & pissasphaltum dicitur . . . quod ut vult *Dioscorides* odorem picis bitumini mistæ redoleat, non vero quod sit mistura arte facta ex bitumine & pice, ut quidam volunt.” Vide *Geoff.* i. 158. (though I never saw any that smelled of pitch) and *Dioscorides* l. i. c. 100. p. 54. says, “Pittasphaltos eadem quæ pix & bitumen, si ambo hæc fuerint permixta potest.” However nobody will say, if this bitumen be *Dioscorides*’s πῖτταςφαλτος, that it is such a mixture.

## S E C T. II.

Petroleum agrees in virtues with the oleum succini, and may be used the same way.—It is recommended internally chiefly in hysteric fits ad gut. x. and externally for fixed pains and paralytic limbs. The pisseleum seems to partake of the qualities of the petroleum and asphaltos, and is milder than the balsamum sulphuris. Inwardly used it is reckoned pectoral and vulnerary; and outwardly is good in diseases of the skin.—It is an aromatic, antiseptic, diaphoretic, anodyne, and uterine mineral oil. The bitumen is as good as the Jews-pitch in medicine.

“Petroleum calfacit & siccatur, tenuium est partium, digerit & resolvit: cerebro & nervoso generi confert. Oleum terræ arthritidi vagæ maximo est solamini inunctum.” *Schrod.* p. 517. “Pisseleum Indicum, pulmonicum, stomachicum & sudorificum est.” *Dale*, p. 25. “Naphtha . . . nunquam cognovi usum, scribit Kæmpferus, Persis præstare alium, quam ut vernicem suam ea attemperent.” *Dale*, p. 24. “Petroleum Gabianum, in uteri suffocatione, egregio cum successu, ad guttas aliquot intus assumitur, & infantibus ad vermes enecandos propinatur. In mensium suppressione prodest, si assumantur gut. x. vel xv. in vino; idque eo magis, si pubis hoc oleo illinatur. In paralyti, & partium nervosarum doloribus frigidis, pars affecta cum successu inungitur.” *Geoff.* i. 157.

1. The naphtha is a very subtile and volatile oil, evaporating in the common air, and, as is observed above, little different from the oleum succini. Hence it seems to catch fire at a distance, and is not bettered by distillation. “Petroleum distillatione liquorem oleosum suppeditat, qui paulo pellucidior est, sed non parum nativi odoris subtilis perdidit; quique accensus, flammam minus fulginosam, sed magis languidam edere visus est. In alembici fundo, exiguum magma flavum remanet.” *Geoff.* i. 157. who adds, “Unde patet petroleo nihil perfectionis per distillationem accedere.

2. All the liquid bitumens consist of this mineral oil, of less or more earth; and probably, at least the thicker kinds, of some acid. “Petroleum duplex est vel nativum, quod ex petris & faxis effluit; vel artificiale distillatum ex carbonibus fossilibus.” *Dale*, p. 24. “Ad sulphurea mineralia referri queunt omnia mineralia inflammabilia, a sulphure strictè sic dicto, copia & qualitate acidi, quo pollent, discrepantia. Talia sunt naphtha & petroleum, ex faxis stillantia, vel & aquis fontium innatantia, inter se vix diversa, nunc subtilissima, limpidissima; nunc flava, crassiora. Hæc ipsa vero valde inspissata, nigrum induta colorem, vocantur bitumen, pix Judaica, asphaltum: porro autem magis indurata in lapidem abeunt gagateum dictum.” *Cramer.* i. 186. Is there any acid in the oleum succini, or in the naphtha?

“Fonti Sanctæ Catharinæ qui 2 milliariis ab Edinburgo ad austrum scaturit, olei nigri guttæ innatant tota superficie. Ejus usus est non solum ad cutem molliendam & tollendam scabritiem; sed etiam experientia compertum est, bituminosum ejus liquorem ad dolores a causa frigida valere, roburque & vigorem languentibus membris procurare, si frequentius



“ eo calefactio innungatur. Dicitur vulgo hic fons. The oily well.” *Sibbaldi Scotiæ Illustrat.* part. 1. l. 1. c. 10. p. 24.

The petroleum was an ingredient in the emplastr. anodynum rubrum *Pharm. Edinb.* ed. 1722 & 1735: but there is not one of the 15 simples in it, retained in the emp. anodynum ed. 1744. *Tempora mutantur!*

“ Ex pisselæo Indico, addito olei anisi tantillo, Pharmacopolæ nostræ Londinenses *Balsamum, Chilenfis* nomine celebratum, conficiunt.” *Dale*, p. 25. I mentioned above the balsamum sulphuris Barbadenſe. *Pharmacop. N. Londinens.* — “ Tria hæc bituminis liquidi genera non nisi secundum magis & minus differunt, ut quidam statuunt, ita ut pars ejus spirituosior & subtilior sit naphtha, huic proxima petroleum, crassior & fœculenta asphaltum: non secus ac videmus ex succino per distillationem, primo elici spirituosum & limpidum oleum, quod naphtham representat; mox oleum flavum, demum materiam nigram & fœculentam.” *Worm. Musf.* p. 30.

## L E C T U R E XXXI.

### Of EARTHS and STONES.

“ **T**ERRA vocatur quæ injecta aqua statim solvitur, & fit lutum.” *Galen, Simpl.* l. 9. p. 66. “ Lapidēs vocantur corpora in aqua non solubilia, sub malleo non ductilia, in igne non ardentia, fixissima, firmiter cohærentia. Quando illi minimis impalpabilibus particulis existunt, parum vel non cohærentibus, dicuntur terræ; si vero visibiles, palpabilis admodum parvi, tamen lapilli coacervati sunt, nomen gerunt arenæ, sabuli glareæ.” *Vide Cramér.* i. p. 12. *Geoff.* i. 65, &c.

### T E R R Æ.

#### S E C T. I.

1. Bolus: Bolus Armenia *offic.* Bolus Orientalis, a quibusdam Armenus dictus. *Worm. Musf.* p. 11. Bolus Orientalis. *Charlet. Foss.* p. 5. Bolus Armenia vel Orientalis. *Schrod.* 326. Bolus Armenia vera *offic.* *Geoff.* i. p. 72. Bolus, seu terra Armenia. *Aldrov. Musf. Metal.* 269. Bolus Armenus verus *Kentm.* p. 7. Bolus Armenia *offic.* Bole Armoniac. *Dale*, p. 16. Armenian Bole. This is a smooth, friable, fat or soapy earth, of a yellowish-red colour, and subastringent earthy taste, brought from the *Levant*.

Whether any of it comes from Armenia I cannot say: but if there is any from thence, it is very rare. It is certain however that an earth called Armenian bole, is brought from Turkey; for it is found in the (newest or) latest books of rates in France; and even before 1688, there used to be imported of it, from Constantinople, at Marseilles between 150 and 200 quintals annually.

nually. Vide *Savary Diel.* i. p. 396. and iii. p. 439. There is also in the French tariffs a *Bol fin du Levant*, as distinct from the *Bol d'Armenie*. Yet according to *Matth.* p. 937. the bolus Armenos came from Lemnos; and a false kind was brought from Hoa. "Nobis Wirtebergica est usualis," says *Schroder*. It is brought from Swisserland, *Albin. M. S.* "France furnishes itself with boles." Vide *Lem. Diel.* 84. "Ex Hispania aut Normannia advehitur." *Dale*, 16. This now shown comes from Holland. What we have from London does not so well agree with the description; and the *New Lond. Disp.* allows the bolus Gallica to be taken for it (in the *Diafscordium, theriaca, lapis medicamentosus*) as it is perhaps only to be had there. *Crato* prefers to it the bolus Tocaviensis. But it matters not where it is got, provided it is not gritty, nor rough, but fat, soapy, &c. as above described.

*Galen* first introduced this earth into medicine: for it does not appear to be the rubrica sinopica of *Dioscorides* l. 5. c. 3. p. 368. which was of a liver colour . . . "Durante hac immani & gravi peste, allata ad me quædam terra est, ex Armenia quæ Cappadociæ finitima est, siccantior, colore pallido. Lapidem qui donarat, non terram appellabat; promptissimeque in levorem solvitur, ceu etiam calx, nec in illa arenosum quippiam apparet:" (then he commends it for dysenteries, fluxes, hæmoptoes, catarrhs, coughs, consumptions, asthmas, putrid ulcers in the mouth, and adds) "porro in magna hac peste, cujus eadem facies fuit, atque ejus quæ *Thucydides* memoria grassabatur, quotquot hoc medicamentum bibere celeriter curati sunt. At quibus non profuit, omnes interiire, scilicet cum nec alio quovis juvarentur. Unde colligitur quod iis duntaxit non fuerit auxilio, qui plane erant incurabiles. Cæterum bibitur ex vino albo consistentia tenui, modice diluto, si aut plane febre careat, aut leviter ea teneatur: sin gravius febriat, admodum aqueo. Non tamen calore vehementes sunt febres pestilenciales. Porro de ulceribus resiccati postulantibus quid attinet dicere, quantam vim habeat bolus hæc Armeniaca." Thus *Galen Simpl.* l. 9. p. 66. G. So that he is not fairly quoted by Mr. *Geoffroy*. "In immani peste, narrante Galeno, quotquot hoc medicamen bibere celeriter sanati fuerunt. Externe siccant & astringit, &c." *Geoff.* i. p. 73. He is nearer right in what he says above. "Non plane constat, num bolus Armena Galeni eadem sit cum bolo Armena Græcorum juniorum & Arabum: hæc enim colore ad crocum accedente, illa vero pallida erat; nisi dicatur in eadem terræ vena glebas diversi coloris repertas fuisse, sicut in nostrate, in eadem gleba venæ albæ, rubra, flavæ & aliæ sæpe deprehenduntur." Yet *Avicenna* writes. "Lutum Armenum (Thin Armeni) est lutum rubeum, declinans ad cinericeum notum, & alium est ei propinquum in operatione." l. 2. t. 2. c. 421. p. 139. A.

2. Bolus communis, bolus Bohemica offic. Bolus Gallica, *Ph. Lond.* p. 6. Bolus Bohemica offic. *Aldrov. Mus. Metal.* 271. Bolus Bohemicus rubens. *Kentm.* 7. German bole, *Dale* 17. Bolus nostras, *Geoff.* i. p. 73. Common bole—is not so fat or soapy as the former, but more dry, friable and rough; of a pale red colour, with yellowish veins in it sometimes; of an earthy subastringent taste: It is found in Bohemia, France, &c.

The common bole from London differs from that brought from Holland. I doubt if either comes from Bohemia. "Est substantia terrea, ex flavo pallide-rubicunda, sed minus intense quam præcedens, cum aliquot venis flavif-



“centibus facile, friabilis, ponderosæ, saporis astringentis è plurimis nostræ  
 “Galliæ locis eruitur, & in officinis vulgatissima est.” *Geoff.* i. 73. *Dale*  
 mentions other 6 or 7 boles; one of which is the “bolus candida offic. Terra  
 “sigillata Lignicensis. *Aldrov. Mus. Metal.* 265. *Schroder.* p. 324.” *Dale* p. 17.  
 Bolus candidus *Lignicensis* seu terra sigillata *Goltbergensis*, axungia limæ chy-  
 micis. *Worm. Mus.* p. 10. White bole. But none of them are in use. . . .  
 Bolus in Greek (not ὁ βολος, jactus, but) ἡ βολος, gleba, massa, also offa,  
 bucella. Yet sometimes it is hic bolus, “Crucior bolum tantum mihi erep-  
 “tum e faucibus.” *Terent.*

3. Terra Lemnia offic. Terra Lemnia rubra. *Worm. Mus.* 10. Terra Lem-  
 nia. *Aldrov. Mus. Metal.* 262. Terra Lemnia vel sigillata vera, *Kentm.* 3.  
 Terra sigillata Turcica rubra. *Mont. Exot.* 14. *Dale*, p. 17. The earth of  
 Lemnos or Lemnian Earth is a hard, brittle, fat earth, of a yellowish-brown  
 colour, of an earthy and as it were of a soapy or rancid taste. We have it here  
 and in Holland in fragments: in France it is sealed. — Are these earths the  
 same?

“Est substantia argillacea, sebacea, pinguis, & ponderosa, ex flavo-rufes-  
 “cens; eruta ex terræ fodinis in insula *Lemno*, & alibi in *Turcica*, unde ad nos  
 “adfertur.” *Dale*, p. 17. “Qua hic utimur est in frustis diversæ magnitu-  
 “dinis, valde irregularibus, coloris fusco-rufescentis; est dura, ponderosa  
 “pinguis, linguæ adhærens; saporis leviter austeri.” *Nucl. Belg.* 288. “Terra  
 “est argillacea, pinguis nempe, tenax & lubrica, colore pallide-rubro. Omnis  
 “hæc terra in pastillos, seu exiguas placentulasziv. circiter pendentes formata,  
 “& variis characteribus insignita, ad nos adfertur. *Geoff.* i. 66. Vide *Savary*  
*Diæ.* ii. p. 1751.

“Mirum sane Lemniam sphragida tam longo ævo in usu fuisse; atque inter  
 “homines adeo fama celebratam, etiam ipsius *Homeri* & *Herodoti* ætate qui  
 “*Dioscoridem* & *Galenum* multis sæculis præcefferunt, adeo celebrem fuisse, ut  
 “ceremoniis & patriis ritibus augustior redderetur.” *Ballonius, Obs.* l. 1. c. 29.  
 p. 34. Yet I find it not in *Hippocrates*, though he mentions the terra *Ægyptica*,  
*Cimolea*, alba, erythræa, nigra, Samia, figularis. “Lemnia terra defertur  
 “è cuniculoso quodam specu Lemni insulæ in quo nascitur. Scilicet palustris  
 “locus inibi est, è quo eruitur, & hircino sanguine permiscetur. Hanc dein  
 “incolæ coactam in pastillos capræ imagine signant, unde & sphragida αἶγος  
 “appellavere.” *Dioscorid.* l. 5. c. 113. p. 368.

*Galen*, who was in the island, says this earth is taken out of a hill near  
*Hephestias*, which is barren, and burnt as it were, on the east side of the  
 island. “In hunc itaque collem sacerdos, quo tempore ego ad insulam ac-  
 “cesseram, egressa, certo quodam tritici hordeique numero in terram con-  
 “jecto, aliisque quibusdam pro religione patriæ perpetratis, plaustrum totum  
 “terra implevit. Atque ubi in urbem convexisset, illas adeo celebratas Lem-  
 “nias sphragidas præparabat, quo dixi modo. Visum mihi erat percontari  
 “numquid unquam antea hircinum aut caprinum sanguinem huic misceri so-  
 “litum memoriæ proditum accepisset. . . Quo audito omnes in risum soluti  
 “sunt.” *Galen. Simpl.* l. 9. p. 65. A. &c. He says it is prepared by mace-  
 rating it in water, stirring it strongly, and after a little rest pouring it off from  
 the stony and sandy dregs, and suffering it to subside: then they separate, seal  
 it sacro *Dianæ* signo, and dry it. “Eundem quem rubrica colorem obtinet,

“verum

“ verum ab ea differt, quod contactu non contaminet, atque illa: & ſcun-  
 “ dum collem in Lemno, qui totus colore fulvo eſt, in quo neque arbor,  
 “ neque ſaxum, neque planta naſcitur, tantum hujusmodi terra viſitur.”  
*Ibid.*

And there is ſtill an earth digged up in that iſland, called now Stalinine, in  
 high eſteem. Among the Grand Signior’s preſents to the Emperor *Matthias*,  
 in 1615, were ambra, baſſamum, bezoar, & terra ſigillata. The famous *Buſ-*  
*bequius* ſent *Steph. Albucarius* to the iſland to enquire about it; whoſe account  
 of it vide in *Matthiel.* p. 932. According to him this earth is indeed got  
 out of a hill, on the eaſt ſide of the iſland, near the village *Repondi*; but this  
 hill is neither barren nor parched, being cultivated and productive of trees,  
 herbs and grain; and in the places where the earth-pits are, ſtones are found  
 ſo big “ ut piſtrinarie molæ ex iis parari ſoleant.” The greateſt part of the  
 earth there is white, or only reddiſh. It is dug up only on the 6th of Auguſt,  
 and only ſix hours after ſun-riſing. Being waſhed, dried, and marked with the  
 Grand Signior’s ſeal, it is all almoſt ſent to Conſtantinople. It is death to ſeal  
 it or open the pit on any other day. Vide *Matth.*—*Bellonius* tells us, that the  
 hill is but about four bow-draughts from the ruins of Hephæſtias; that he ſaw  
 the place where the earth is taken out on the 6th of Auguſt, but could not  
 know where the mouth of the pit was, it was ſo covered up with common  
 earth; and by no means would they open it: the hill he calls *Cochmus collis*.  
 “ Totius inſulæ primæ auctoritatis viri, cum Turcæ, tum Græci ſacerdotes  
 “ & Colvieri in ſacellum nomine *Sotira* conveniunt, celebrataque Liturgia, more  
 “ Græcanico, præciſuſque fuſis, omnes ſimul, Turcis comitantibus, collem  
 “ conſcendunt, atque 50 aut 60 viros ad fodiendum adhibent, donec venam  
 “ terræ aperuerint; detecta vena, Colvieri ſacculos quosdam, ex animalium  
 “ pilis conſectos, terra implent, quos Turcis adſtantibus tradunt; nempe  
 “ *Saubachi* aut *Vaivodæ*: cumque tantum terræ exemerint, quantum in illum  
 “ annum ſufficere exiſtimant, iſdem operis, qui illic adhuc præſto ſunt, ve-  
 “ niam denuo tegi curant aggreſta terra. Tum Saubachi, maximam terræ  
 “ partem ad *Turcarum Imper.* Conſtantinopolim devehi curat. Reliquum mer-  
 “ catoribus vendit. Et ne quis niſi eorum opera, illam habere queat, ſeveris  
 “ legibus coercent; neque fieri etiam poſſit ut quiſquam (licet 20 operas in-  
 “ tegra nocte adluberet) ad terræ venam uſque pertingat, quin facile animad-  
 “ vertatur. Qui dum effoditur circumſiſtunt, ſinguli in ſuum uſum ejus  
 “ pauxillum ſumere poſſunt, at eam divendere non audent.” Vide *Bellon.* l. c.

Hence the true terra Lemnia is a ſtranger to all the ſhops in Europe;  
 though it may eaſily be imitated by ſuch as have ſeen it. “ Non deſunt im-  
 “ poſtores qui eam Conſtantinopoli, teſte *Bellonio*, adeo dextre adulterare norunt,  
 “ ut legitimæ quam ſimillima videatur.” *Geoff.* i. 67. viz. *Ballonius* l. 1. c. 22.  
 p. 28. who ſays alſo (c. 23.) “ Terra ſigillata, que Conſtantinopoli magis  
 “ vulgaris invenitur, maxima ex parte adulterina eſt.” See there his deſcrip-  
 tions of the (18) various kinds he procured.

Terra Lemnia therefore is the moſt ancient, and the only true terra ſigillata:  
 But how many kinds now have inſcribed *terra ſigillata vera* on them I cannot  
 determine; nor is it uſeful to name ſuch as I have. Mr. *Dale* I think men-  
 tions about 36 earths, beſides the 9 terræ ſigillatæ, obſerved by him in the  
 druggiſts.



druggists shops. I shall only take notice of one, viz. the most famous next to the Lemnian, and that is,

4. Terra Silesiaca, terra sigillata *offic.* Terra, sigillata Silesiaca, terra sigillata Germanica, sigillum Strigoniense, axungia folis chymicorum. *Worm. Mus.* 12. Terra sigillata Strigenfis, lutei coloris quæ in Scaptensula Auri Sweeneyensi reperitur; Strigenfis dicta a Striga Silesiæ oppido, ubi præparari & sigillari cœpit. *Schrod.* 324. Terra sigillata Silesiaca. *C. Hoffman.* p. 530. Terra Silesiaca *offic.* Terra sigillata *vulgo*, five terra Strigenfis. *Dale*, p. 18. Terra sigillata Strigonenfis, quæ axungia & medulla folis dicitur. *Geoff.* i. 71.

The sealed earth of Silesia or Striga is a fat soapy earth of a yellowish-clay colour, in little round cakes or pastils, and sealed with the town's arms. What I show for it is sealed on one side with a ridge of mountains, with two more prominent tops; above which in the middle between the tops, is a shield with two cross keys salter-ways; and below all *terra sigillata*, in capitals. This agrees exactly with the plate in *Wormius. Mus.* p. 12. but not with Mr. *Dale's* description of the impression. "Terra est lutei coloris, ad flavedinem vergens, pinguis, viscosa instar butyri in aqua vel ore diffuens. . . (This and more from *Wormius* unnamed) in formam orbiculorum impresso sigillo (urbis) redigitur, montis diversis prominentiis distinctum, cui additur duarum clavium decussatim se interfecantium, scutum ad dextram stella infra montem hæc leguntur, *terra sigillata Montis acuti.*" *Dale*, p. 18. Several sealed earths imitate the impression on this, but not exactly. I can warrant none of them to be genuine.

"Joan. Montanus, natus Strigæ in Silesia 1531, Medicus & Practicus celeberrimis, primus in ea regione terram sigillatam reperit, qua sibi soli tum servata multos morbos graves feliciter curavit, donec jussu illius senatus, tractatum Latinum de illa edidit. Obiit A. D. 1604, æt. 73. (The title is) Breve sed exquisitum, vereque philosophicum judicium, doctrinis, mysteriorisque, variis refertum de vera, nativa, omnisque artis & fuci experte terra sigillata, Strigonii, per divinam gratiam a se inventa. Norimbergæ 1585, in 4to." Luid renovat. p. 644.

"Reperitur in auri fodinis montis acuti, seu D. Georgii ad Strigonium oppidum ducatus Swidnicensis, inter durissimas rupes, inde eruitur & summa diligentia, magistratus ordinatione, præparatur, & in formam orbicularem, impresso sigillo urbis, redigitur. Joan. Montanus inventor ejus, statuit esse aurum Dei providaque naturæ ordinatione, in præminentem præparatam medicinam transmutatum, contra venena utilem, non minus quam medicamenta quæ magnis sumptibus ex auro Ungarico conficiuntur. De quo tamen dubitare videtur Senertus." *Worm.* p. 12. — *Arcana revelata vilescent!*

## S E C T. II.

They are subastringent; are called alexipharmic; and recommended internally not only in fluxes and hæmorrhages, but also in malignant fevers, plague, &c. and externally as styptic or rather drying.

"Bolus terræ genus est, ex pallido-rubrum, vaporibus martialibus inprimis imprægnatum. Valde siccatur, astringit, roborat. Hinc usus ejus saluberrimus

“berrimus est, in fluxu sistendo, in humore inspissando, in putredine arcenda, veneno obtundendo, &c. qua ratione convenit in diarrhœa, dysenteria, fluxu menstruo, catarrho, spuitione sanguinis, hæmorrhagia narium & vulnerrum, &c. Externe ejus usus creber est, in cataplasmatibus, pulveribus astringentibus, &c.” *Præparationes*, 1. Bolus præparata, sed cruda potius in usu est. 2. Magisterium.” *Schrod.* p. 326.

“Terra sigillata exsiccat, astringit, resistit putredini venenoque, resolvit, sanguinem dilatat, adeoque ciet sudorem. Usus præcipui in peste, febribus malignis, diarrhœa, dysenteria, in moribus animalium venenatorum. Extrinsecus in vulneribus malignis mundificandis, in iclu venenato. . . N. De axungia solis experientia comprobavit, quod qualis ex minera eruitur sæpissime epilepsiam curaverit: & quod in philtris maxime profuerit. Dosis a ʒss. ad ʒij. *Præp.* 1. Terra sigillata præparata; ut plurimum sine præparatione vulgari in usum venit. 2. Magisterium. 3. Spiritus simplex. 4. Spiritus cum vino. 5. Spiritus alcalifatus, seu balsamus terræ. 6. Oleum terræ Strigonenfis.” *Schrod.* p. 325.

1. These are all dry earths, scarcely if at all astringent; with water turn to mud; and are indissoluble, though dilutable in our stomachs: they are not acrid, but may perhaps be called in some measure antacid, and so of use (if at all useful) in excoriations of the primæ viæ, inviscating acrimony there, and preparing slimy humours for being carried off. “Bolus abstergit, siccat, non astringit.” *Hoffman.* p. 530.

2. Although they imbibe aqueous, yea oily liquids, and thus in some sense abstergant & siccant; yet Mr. *Homberg* found that neither sp. nitri, nor spiritus salis dissolved either bole or sealed earth. Vide *Mem. Acad.* 1700. So that they are not absorbent, being saturated with an acid; which, in some at least, is the acidum vitrioli. Mr. *Lemery* got from the residuum a distillatione sp. nitri with clay, a small quantity of green vitriol. Vide *Chym.* p. 445. All the red kinds seem to contain something of iron-ore. Vide *Schrod.* supra.

3. Externally they may stop bleedings by turning into a crust with it, and thus plastering up the wound, as does chalk also without any notable stypticity. But I must suspect their alexipharmic virtues, though asserted by not a few grave authors. “*Fracastorius* l. 3. *De morbis contag.* olim de boli Armenæ vi alexipharmaca notavit, quod ea homini intumescenti & in agone a morsu araneæ posito exhibita, vox statim rediit & vita.” *Morton, De febribus intermit.* Exp. 1. c. 7. p. 62. *Sit experientia judex.*—But granting the true Armenian bole, or any of the earths, had this, or any other specific virtue, where or how can we have them genuine, or how know that they are so.

“Si ad terræ Lemniæ analysim attendamus, eam viribus, quas illi tribuere veteres, non prorsus destitutam judicabimus. Nonnihil salis urinosi volatilis e suo sinu fundit, cum aliqua olei bituminosi portione; & aliquantulum salis fixi, a sale marino non discrepantis suppeditat. Hæc igitur terra sale ammoniacali imprægnatur, & oleo bituminoso saturatur, a quo acidorum actio in eam præpeditur. Unde conjicere licet, virtutem alexipharmacam, diaphoreticam, abstergentem, & vulnerariam, illi haud immerito adscribitam fuisse, licet enim adeo debilem esse fateamur.” *Geoff.* i. p. 67. I wish he had acquainted us how he got the terra Lemnia;—who analysed it;—and in what proportion it yielded these principles? I suspect them to be imaginary. But whether they be so or not, I don’t see how it comes to be thence alexipharmic,



pharmic, &c. How these can be separated in us; nor how his inference agrees with his observation on the analysis extracti lactucæ, vol. iii. p. 646.—Besides common carbo fossilis affords all these in greater plenty: Is it therefore alexipharmic? This learned author also carefully warns us of the incommoda, which the usus immoderatus & diuturnior of these and other earthy substances may occasion. Vide tom. i. p. 69. Were the danger real, it would be a good argument against using them at all. And truly in my opinion the *Materia Medica* would suffer little prejudice if all these earths were thrown out of it. The *New London Pharmacopæia* retains only the two boles; and seems to use only the worst of the two, the bolus Gallica: yet if washed it may, perhaps, be as good as any of them.

## S E C T. III.

Any of these earths may be given to zij: but ʒj. is enough if free of sand, &c. Preparations of them are useless. The Armenian bole only, or what we have for it, is used inwardly: it is in the diascordium, unguentum desiccativum rubrum, emplastrum defensivum, lapis medicamentosus, and (as a succedaneum for the terra Lemnia) the theriaca andromachi.

If there be any virtue in the boles, the common way of preparing them will probably carry it away with the water. If not, and the colour and consistence only are wanted, they may be prepared as directed in our Dispensatory, p. 32. with a little variation thus, “Bolus Armena trita, (though powdering is not only needless but hurtful) solvatur in aquæ fontanæ q. s. & post repetitam agitationem, (brevis concessa quiete, or cum subsiderint arenulæ) effundatur aqua, polline tenuissimo saturata. Reiteratur affusio aquæ recentis, donec bolus tota soluta sit, relictis arenulis & lapillis. Mixtæ omnes aquæ turbidæ quiescant, ut subsidat bolus, quæ effusa aqua, siccetur.” *N. B.* The repeated affusion of fresh water is here quite unnecessary, as one water sufficiently dissolves or rather dilutes all the bole at once; though it is requisite in the preparation of such hard substances as coral, crabs-eyes, lapis hæmatitis, &c. which require levigation. — “Cum bolus ut plurimum arenulis permixta sit, præparari solet, eam scilicet aqua limpida solvendo, & adhuc turbidam aquam, cum subsederint arenulæ, decantando in aliud vas. Inibi relinquitur donec, sedimento terræ factò, limpida fuerit, tum sensim effunditur, & terra in placentulas redacta, siccatur, & ad usum servatur.” *Geoff. i. p. 73.* The *New London Dispensatory*, however, prepares none of them, either for inward or outward use; sand and all must go down.

## C R E T A.

## S E C T. I.

1. Creta, creta alba *offic.* Creta. *Worm. Mus. p. 3. Charlet. Foss. 2. Schrod. 326. Merret Pin. 218. Terra creta. Aldrov. Mus. Met. 241. Creta offic. Dale, p. 21. Creta seu terra cretica. Geoff. i. p. 75. Chalk.*—This is a dry, bibulous, lean, friable, light and soft stone, staining what touches it; of a white colour,

colour, and insipid taste. . . : There are mountains of chalk in England, Denmark, Germany, France, as well as in Candy. It was known to all the ancients. *Pliny* mentions a creta cimolia, sarda, umbrica, saxum, and argentaria. Vide l. xxxii. c. 17. p. 855.—I shall name only another, viz.

2. Creta rubra, rubrica, & rubrica fabrilis *offic.*? Rubrica fabrilis. *Matth.* 937. *Merret. Pin.* 218. Rubrica. *Worm. Mus.* 4. *Charlet. Foss.* 2. *Aldrov. Mus. Metal.* 257. Rubrica fabrilis mollis. *Kentm.* 8. Rubrica fabrilis *offic.* *Dale*, p. 20. Red oker, marking stone, reddle or ruddle:—which is of a dark-red colour, and subastringent earthy taste, pretty solid and heavy, staining stone.—It is found almost every where, in gravelly, earthy, coarse sandy stones, metallic mines, proper veins, &c. The ancients knew a rubrica sinopica, rubrica fabrilis, *Ægyptia*, *Africana*, &c. as also that made of ochra lutea, by calcination. Vide *Dioscorid.* l. v. c. 111. & 112. p. 368. ut et *C. Plin.* l. xxxv. c. 6. p. 832. *N. B.* “Rubrica fabrilis in laterculos coacta pro bolo communi, “*commun bole armoniac*, in officinis a pharmacopolis venditur: in placentulas “coacta, & sigillo aliquo signata, terra sigillata rubra, *red lumber-stone* dicitur.” *Dale*, p. 20. “Ad cretarum genera revocantur variae terrarum species, varii coloris; ut creta alba, proprie dicta, rubrica fabrilis; terra viscens Theodosia dicta; ampelites, seu terra nigra fabrilis, &c. quarum rarissimus usus in medicina.” *Geoff.* i. p. 75.

## S E C T. II.

Chalk is absorbent; and is commended internally for all diseases occasioned by acids in the primæ viæ, as some cardialgiæ, fluxes, hæmorrhages; and externally for excoriations, erysipelatous swellings, moist ulcers. It may be given like the boles. The ruddle is as good as any of the former earths, and rightly prepared, not a bad succedaneum to any of them. It is commended for spitting of blood, and sometimes used in drying plaisters.

“Creta siccatur, abstergit, emplastica est. Usus ejus internus nonnunquam est, in ardore stomachi; externus in vulneribus, ulceribus, &c. siccandis. Rubrica siccatur, adstringit. Usus ejus medicus est in sputo sanguinis, & in emplastris vulnerariis & siccantibus.” *Schrod.* 327. For,

1. Chalk is a dry thirsty earth, or soft stone, which effervesces with and destroys every acid, mineral as well as vegetable: hence the most excellent sweetener of springs, or hard waters.—*N. B.* The *Bristol* waters.

2. Calcined it becomes quick-lime, and is the *Calx Pharm. Londinensis*; of which at London they make the aquæ calcis: though elsewhere the calcined lime-stone is used; of which afterwards. . . “Quidam lapides in igne summo “vulgari, vel plane non mutantur vel simulantur, haud tamen funduntur, “neque in calcem, mediante humido, dilabuntur; unde appositissime vocantur Apyri. Creta inter hos, primum meretur locum; utpote, modo pura “sit, sub ipsis speculis causticis, ne quidem mutabilis.” *Cramer.* i. p. 15.—*Is there any such creta?*

3. It stops bleedings as boles do. Dissolved by an acid it becomes somewhat aluminous, at least by a vitriolic acid; or rather styptic, for alum can-



not be made of it. It is neither acrid, styptic or repellent by itself, hence it is safe in erysipelous swellings, &c. only imbibing the moisture : and so it prevents, as well as cures, excoriations. “ Acidum egregie absorbet, atque cum eo acquirit naturam salis saturni.” *Nucl. Belg.* p. 91. They might as well say naturam arsenici.

4. It is certainly most useful in the cardialgia ab acido; but in a cardialgia or soda ab æstuante bile, or any hot alkaline or putrid acrimony, it does no good. *Expertus loquor.*—Mr. *Geoffroy* indeed says the contrary, and thus explains its operation. “ Observandum autem terras alcalinas, non modo succos acidos absorbere, sed & acriorem pituitam demulcere, & bilis æstus inhibere; cum nempe fixioribus suis particulis, concitatiorem salium & sulphurium motum coercere valeant.” *Geoff.* i. p. 75. Their absorbency has certainly nothing to do here. Whether it has any effect on worms I know not. “ Vermes interimit, uteri hæmorrhagias sistit, si applicetur umbilico. . . Gallis gallinaceis, quoad usum domesticum, est adversa.” Vide *Tb. Bartholin.* Cent. 5. Hist. 83. *Hoffm.* in *Schrod. Manget.* p. 193.

The rubrica is not absorbent, but contains iron in greater quantity than any native bole; so is more astringent, and preferable to them in most, if not in all, cases. “ Rubrica fabrilis, creta rubra, ochræ ferri soboles esse videtur, interventu boli vel argillæ indurata. . . Ad tactum percipitur saponacea, igni majori exposita, indurescit admodum & fufcescit cum splendore : ferri plurimum in se habet.” *Cramer.* i. p. 203.

The chalk is prepared by levigation with water only in *Ph. Lond.* but it often needs washing, and can lose nothing by it.—“ Exhibetur sola a ℥ss. ad ʒj. vel ex ea paratur decoctum cretaceum *Pharm. Bateanæ.*” *Geoff.* i. 75. “ Cretæ albæ dosis est ad ʒij.” *Nucl. Belg.* p. 91. — “ Julepum e creta. R Cretæ albissimæ pp. ʒj. sacchari purissimi ʒvi. gum. Arabici ʒij. aq. lbij.” *Pharm. Lond.* p. 96.—“ Tabellæ cardialgicæ. R Cretæ pp. ʒiv. chel. cancror. pp. ʒij. boli Armeniæ aut Gallicæ ʒss. nucis moschat. ʒj. sacchari purissimi ʒiij. Omnibus in pulverem redactis, aquam instilla, ut fiant tabellæ.” *Pharm. Lond.* p. 117. Thus a mixtura & julepum, trochisci & tabellæ are confounded in *Ph.* hac accurata.—Is chalk always free from hurtful heterogeneous substances?

## L A P I S H I B E R N I C U S.

### S E C T. I.

*Lapis Hibernicus offic.* *Dale,* p. 40. *Lapides Hibernici, Merret. Pin.* 213. *Lapis fossilis Hibernicus. Charlet. Foss.* 16. Irish slate—is a pretty heavy, not very hard, cleaving stone, of a bluish-black colour and earthy taste.

There are quarries of it in England as well as in Ireland. It cuts and polishes well, and is much used for abacusæ or tables and slates to write, or score upon.—Where and when it was first reckoned among medicines, I know not.

“ Its efficacy in medicine, does not appear to have travelled far, and in our own country it seems only in the account of the common people, who  
“ have

“ have a mighty opinion from custom, and its frequent use in such cases, of  
 “ its healing virtues in bruises and inward injuries. Its substance is some-  
 “ what soft and fattish, which may probably give some assistance in such  
 “ cases : but it is rare to meet with it in the prescription of any physicians.”  
*Quincy, Pharm.* p. 141. It is in the catalogue of the simples of the *New Dispensatory*, as *Culpeper* gives it in his *Pharm. Londinensis*, edit. 1653, in fol. viz. among the minerals, p. 53. Also in *Skipton's* (printed 1711) in *Salmon's Dispensatory*, and *Pb. Edinenfis*, in which last it is called *Hibernicus lapis*, *tegula* vel *ardesia Hibernica*. But I find it in none of the three last editions of the *Pharm. Lond.* nor in any foreign Dispensatory, except the *Codex Medicament.* edit. an. 1748, where it is called *ardesia*, *ardesia Hibernica*, *tegula Hibernica*; and placed only among the simples.

## S E C T. II.

It has probably the virtues of the boles, if any : But it is said to dissolve coagulated blood, to be good for bruises and quartans, given in powder to ʒij, in honey or the like.

“ Cum spermaceti viribus convenire creditur, & in contusionibus non infrequens usurpatur; sanguinem enim coagulatum resolvit. Usus ejus mechanicus est pro inscribendis rebus memoriæ causa, &c.” *Dale* ed. 2. 83.—  
 “ In contusionibus non infrequenter usurpatur, sanguinem enim coagulatum resolvit. Alii in febribus quartanis valere aiunt. Usus ejus summus est in  
 “ omni hæmorrhagia, in fluxu uteri, & hæmoptoicis.” *Idem*, edit. 3. p. 40.

Its taste is earthy, somewhat rough and not disagreeable; and it smells a little bituminous when heating or burning. The *ardesia regularis* is one of the *lapides vitrescentes* in *Cramer* i. p. 12.

“ Irish slate with sp. C. C. makes a small, yet visible, ebullition, and presently ceases. Its taste is acid and somewhat rough, hence a vitriolic bole; and is upon good reason given upon any inward bruises. Because by coagulating the blood, it prohibits its too copious afflux into the affected part. Yet being but gently astringent, and so the coagulations it makes not great, they are likewise well enough carried off, from the same part, in the circulation; by both which means, an inflammation may be either prevented, or the better over-ruled.” Thus *Grew on Mixture*. Vide *Anat. Plant*.

“ Irish slate comes from Ireland; but I have found much growing in England. It is often used against bruises, in place of spermaceti, and is said to be very effectual against quartan agues. Dose a ʒij. ad ʒij.” *Salmon, Disp.* p. 411. Dr. C. gives it in the *fluor albus*. So that it coagulates the blood with some, and dissolves coagulated blood with others: But probably it does neither, going no further than the *primæ viæ*, where perhaps it may be as effectual in agues as the *oculi cancerorum*. Vide *Cortex*. The *New Dispensatory* in the index makes it an earth impregnated with alum.



## OSTEOCOLLA.

## S E C T. I.

*Osteocolla offic.* Osteocolla, aliis offifragus, osteites, stelochites, ammosteus, osteolithos, holosteus. *Werm. Mus.* 53. *Osteocolla offic. Dale*, 39. Osteocolla, *Charlet. Foss.* 22. Osteocolla, *Schroder.* 361. Lapis offifragus (cujus 2 species) *De Boot*, 416. Osteocollus. *Aldrov. Mus. Metal.* 626. *Schw.* 387. Osteocollus crustaceus, *Gesner. Rar. Foss.* 30. *Dale.* The bone-binder.—This is a friable, not very hard chalky substance, of a white colour, and insipid taste, commonly in cylindrical pieces, of different sizes, knobby without, hollow within, or filled with a dry earth.

It is found in the Palatinate, Saxony, Silesia (*De Boot, Worm.*) growing among sands. "It is found in Germany, as also in England. . . Sometimes the roots of living trees are found charged with this kind of substance." *New Dispens.* p. 173. Vide *Charlet.* l. c. — *Thomas Erasmus* wrote an epistola de lapidis sabulosi, qui in Palatinatu ad Rhenum reperitur, historia, ortu, natura & causis. Extat in opusculis suis medicis. Francoforti 1590, in folio. In the *Phil. Transactions*, No. 39. for Sept. 1668, p. 771, there is an extract of a letter, from Prof. *Beckman*, concerning this stone.

"The osteocolla, says *Beckman*, grows only in a sandy, not gravelly soil; neither in any rich or clayey ground; and being found above the surface of the earth, you may still find downwards of its branches, till you come to two mens depth under ground, its branches commonly growing streight up, yet sometimes spreading sideways. The branches are not all of equal thickness, and the farther from the common stem the thinner; the stalk usually equalling the thickness of an ordinary man's arm or leg, and the branches the thickness of ones little finger. It is found by this mark upon the sand, which is here every where yellowish: there appears a whitish fatty sand, which if dug into, hath under it, a dark, fatty somewhat moist and putrid matter, like rotten wood, called the flower of this substance. When found it is altogether soft, yet rather friable than ductile; so if one would have a whole piece, with its branches, he must carefully remove the sand from it, and let it lie so a-while; for exposed to the sun for half an hour or so, it grows as hard as ever. It requires time to come to maturity, for in the place where I digged some of it last year, I this year found others, but they remain still soft and friable, though now in the fifth month." Thus *Mr. Beckman*, l. c.

"Osteocolla . . . in terra radicatur, ubi ramos habet diversæ crassitie, radices passim per terram diffundit, forma corallii supra terram assurgit, multis tuberculis aspera & inæqualis, nec nisi annuo spatio maturescit." *Albin. Orat. MS.* p. 32. "Crescit per arenam forma corallii." *Schroder.* 361. Vide De lapide osteocolla inquisitio, auctore *Ambrosio Brurero*. Nourernberg. (*Phil. Transf.* No. 467. p. 373.) who with *Newman* derives it from the popich radices. "Quæ si vera sunt sequitur, in illo loco ubi hoc anno osteocolum ex-tractum fuit, altero anno nullam ibi novi concretionem expectandam esse." Vide *Cartbenfer. M. M. i.* p. 173.

S E C T.

## S E C T. II.

It is absorbent like chalk; commended in fluore albo and agues; and is said wonderfully to forward the generation of the callus, and consolidation of fractured bones. — It is given to ʒij; and is also outwardly applied. *Credat qui vult.*

“Celebratur ad ossa cito glutinanda, quippe materiam callo idoneam citissime suppeditat, adeoque glutinationem maturat. Adhiberi potest interne a ʒj. ad ʒiſſ. & externe in catapl. emplastris, &c. Preparatur levigando cum aqua geranii. Cremor Weinlini prodest hypochondriacis.” *Schrod.* 361.

It is an insipid, dry, thirsty earth, and effervesces with acids like chalk; but I could not by a chamber-fire reduce it to calx viva, though *Margraaf* did it by only distilling it in a retort. Vide *Eff. & Obs.* vol. ii. p. 187, so that it is absorbent. Yet I think its effects on fractured bones wants confirmation, though attested by *Matthiolus*, *Dale*, &c.

“Compertum est a compluribus in Germania, perfracta ossa procul dubio sanari triduo aut quatrduo, hujusce lapidis ʒiſſ. pondere potu ac rubro meraco, cum mane tum vesperi hausto. Sed interim os fractum restaurare, æquare, ac asserulis circumquaque munire opere pretium est; & affectum locum illinire unguento ex geranii radicibus cæruleum florem gerentis & lactantis suis axungia.” *Matth.* p. 961.

“Memini me Reytsadii didicisse incolas uti lapide *Reinburch* dicto. Illius enim ʒj. in vino rubro exhibet, in quo prius vinca pervinca inadesacta fuerit per noctem, idque mane per dies 4 aut 5 atque hac ratione dolores eximunt, gravisque symptomata, fracturasque intra 4 aut 5 dies sanant, magna cum omnium admiratione; cujus rei ocularis ipse sum testis, ejusque rei *Matthiolus* mentionem fecit. Eodemque lapide uti præterea solent, in formam cataplasmatismatis redacto, cum geranio contuso, & oleo olivarum, vel rosato, tam felici successu, ut sine dolore ac inflammatione partis, ossa coagmententur. Quod incredibile videri possit nisi præter me innumerabiles alii oculari & idonei testes extarent.” Thus *Quercetan.* as quoted by *De Boot.* p. 419.

“Hæc tamen vires extenuare videtur *G. F. Hildanus*, l. 1. observ. 90. ubi inquit graviter errant impostores nonnulli, qui hoc lapide se fracturas paucorum dierum spatio posse curare gloriantur: attamen illum singulari quadam virtute & proprietate occulta generandi callum, præditum esse certum est. Eo enim, refert idem, se curasse fracturam completam & compositam 30 dierum spatio, in senē, quæ alioquin duorum mensium in spatio curari nequiverit. Verum experientia doctus monet, in corporibus bene habitis & juvenibus caute eo utendum esse. In iis enim callum nimis magnum generari solet, ut deformitatem inducat. Quocirca hoc genus remedii saltem in senibus & extenuatis, quibus languet calidum innatum, adhibendum esse censet.” Thus *Wormius*, p. 53. “Ossifragi lapidis etiam mentionem facit *G. F. Hildanus Observat. Chirurg.* cent. 3. obs. 90. in qua circa finem hæc scribit. Ego etsi ipsum in fracturis ossium præstantissimum esse, controversiam vocare minime contendam; attamen intra tam paucos dies, ut scribunt *Matthiolus* & *Quercitanus*, ossa fracta sanare posse, non facile  
“mihi



"mihi persuadere possum." *Tollius* in *De Boot*, p. 421. That it will cure fractures in three, four, or five days, is absolutely incredible; the *oculati testes* might have been imposed on; and *Hildanus* denies the fact. But *Hildanus* owns it much shortens the cure. True; but there was lately in our infirmary a compleat and compound *fractura cruris*, of a maniac person, cured in (as I remember) fourteen days, without taking any *osteocola*; so that he could walk without any dressings on it. And if there was any such virtue in the *osteocola*, it would never have fallen into disuse as it has done.

## T A L C U M.

## S E C T. I.

*Talcum offic.* *Talcum Germanice* talck, a nonnullis *stella terræ*, *De Boot*, p. 394. *Talcum*, alias *stella terræ*, quibusdam. *Argyrodamas veterum*, *Argyrolithos chymicis*. *Mangetis Agricolæ*. *Germanis* talk. *Worm. Mus.* 57. *Talcum*, *De Laër.* 128. *Aldrov. Mus. Metal.* 685. *Talcus fossilis*. *Calc. Mus.* 458. *Talcum offic.* *Dale*, p. 41.—Talk is a smooth shining stone, made up of thin transparent, and somewhat flexile laminæ or scales, without taste or smell, and incombustible.

"*Talcum est lapis ex squammulis coacervatus, ad tactum saponaceus, ut-  
cunque tenax, magnum sustinens ignem, nec nisi fragilior in eo evadens.  
Mica ejus est species, splendens, magis nitida, nigra, aurea, argentea, nec  
igne nec aqua domabilis. Plurimæ lapidum horum species, ante ustionem  
saponaceæ, vi ignis asperiusculæ fiunt.*" *Cramer.* i. p. 17.

"Talk is used to cover pictures in miniature, or in crayon, being separated into thin leaves; and it seems good for nothing else. The chymists pretend to draw an oil from it, a sovereign cosmetic; and to find in it a menstruum for transmuting metals. There is brought from Muscovy and Persia a red talck. It is fitter for pictures than the *venus-talck*; being very white and very transparent in the leaves, though reddish in the stone." *Vide Savary, Diët.* ii. 1687, & iii. 579, & *Geoff.* i. 79. There are many kinds of it. The Venetian silver-coloured with the greenish cast is commonly preferred. But no matter which be most esteemed, for they are all useless in medicine.

## S E C T. II.

We make no use of talck in medicine. Some make it cosmetic; rather because it is white, and makes the skin itself white, than that it removes the blemishes therein.

"Potissimus ejus usus est externus & cosmeticus. Adhiberi tamen nequit, nisi vinculo suo liberatum, ac in liquorem redactum sit. *Præp. præcipua est calcinatio.*" *Schroder.* p. 363—66. "Omnes hujus (calcinationis) descriptiones a D. auctore traditæ sunt exigui valoris, id quod sane te testari possum, optime mihi conscius, quam in his explorandis me non sine tædio & frustraneo effectu torserim." *Vide Hoffman in Schrod. Mang.* 225.

“ Latere in eo sulphur aliquod solare certissimum est. Talcum calcinatum, (teste *Martiano Martini*, in *Atlanto Sinico*, p. 79.) vino mixtum, & epotum, Sinicis medicis, ut singulare medicamentum ad vitam longam commendatur.” *Hoffman*. *ibid*.

It is an indigestible substance; and whether it would do good or ill inwardly is not certain. It is chiefly recommended for its astringent quality, though nothing like astringency is discoverable in it. So that whether it is most commodiously reduced to a fine powder, by levigation, after frequent ignitions and extinctions in cold water, (vide *Geoff*. i. 79); or by grating it with sea-dogs skins; or calcining it in a crucible, and then pounding in a red-hot iron mortar, (vide *Lemery*, *Diæt.* p. 532) is not worth while to inquire. Mr. *Lemery* l. c. says, the Venice talck calcined by the burning speculum becomes a coarse, yellowish, opaque substance; but the Muscovy talck, a light farinaceous, very subtile and very white powder.

## U N I C O R N U F O S S I L E.

### S E C T. I.

Unicornu fossile *offic*. Cornu fossile, sive lapis ceratites, *vulgo* monocerotiscornu. *De Boot*, p. 425. Cornu fossile. *Worm. Musf.* 54. *Charl. Fossf.* 23. Ebur fossile. *Clus. Exot.* 168. Unicornu fossile, cornu fossile, ebur fossile, lapis ceratites. *Schroder.* 366. Ceratites. *Aldrov. Musf. Metal.* 630. *Gesn. Lap. fig.* 154. Lapis Arabicus. *Cæsalp.* 611. Unicornu fossile *offic*. *Dale*, p. 40. Cornu fossile, *Gesnero*. Ceratites, *Clusio*. Ebur fossile, *Cæsalpino*. Lapis Arabicus, quibusdam dens elephanti petrifactus, aliis lithomarga alba dicitur, a figuræ varietate. *Worm. Musf.* 54. Unicornu fossile, lithomarga alba. *Pharm. Edinb.* 28. ubi terra dicitur.

The unicorn stone, in colour, smoothness and figure, resembles the bones (sometimes the horns and teeth) of animals; is dry, bibulous, and of an earthy taste; sometimes odoriferous, sometimes not.

Many stones or petrifications are found in the earth, in Germany, France, Italy, &c. resembling the bones, teeth, ivory, horns, and other animal substances; also herbs, timber, trees, &c. some of which may be, but that all are petrifications I cannot assert. “ Nullus est dubitandi locus, quin hæc fossilia corpora sunt cornua, dentes, ossa, vel ligna, in lapideam substantiam conversa. . . Variis in Germaniæ locis reperitur unicornu fossile; quin & in agro Parisiensi, juxta Montem Martyrum; ossa cadavera intra lapideam substantiam inclusa, paucis ab hinc annis detecta fuere.” *Geoff.* i. p. 86. Vide *Hoffman* in *Schrod. Mangeti*, p. 227. *De Boot* has 20 cornua fossilia.

### S E C T. II.

It is said to be cordial, astringent and alexipharmic; and is commended in many diseases, given to ʒj. Yet it is generally owned that all such substances  
are



are not of the same nature, some being virulent. Hence *Hoffman* advises to try it on dogs and other animals before it is given to men.

“ Non omnia habent eandem facultatem, aut æque validam, sed differunt pro diversitate originis, reique commixtæ. Ut plurimum exsiccant, adstringunt, proindeque sistunt alvi profluvia, gonorrhœam, menstrua alba, hæmorrhagiam narium, hæmorrhoides. Quod si insuper odor medullis accedat gratus, cordi imprimis grata sunt, idque roborant. Epilepsiam arcent. Quæ cum rebus aliis sunt commixtæ medullæ, pro earum facultatibus naturæ mixtæ censentur. Extrinsicis ulcera ad cicatricem producunt, oculorum lachrymas sistunt in colyriis.” *Schroder.* p. 366. “ Antequam hominibus offeratur, prius in canibus, aliisque animalibus probari debet, cum sæpe contingerit quod ejusmodi cornua fossilia aliquid veneni in se habuerint, unde pro medela fatalis excessus e vita subsequatur. Dosis a ʒss. ad ʒß.” *Hoffman.* l. c.

“ Cum terra Lemnia viribus convenit, & contra morbos malignos commendatur.” Vide *Dale.* l. c. “ Nec quodcunque unicornu indiscriminatum sumitur, sed eligitur grato odore perfusum, & prius in canibus, & animalibus probatum. Aliquando enim contigit, quod aliquid veneni contineat, si nempe est terra arsenicali effossum fuerit, ad quod quidem diligenter attendendum.” *Geoff.* i. p. 86. Vide *De Boot.*

What I have is somewhat aromatic to the taste: but I can compare its flavour to nothing so well, as to the scent of Spanish snuff when it is called musty; though it has little or no smell itself.—In sp. vitrioli it made no sensible ebullition, but soon fell down into a powder; turned milky when shaken, and in about an hour left the spirit above it as clear as ever. Hence it appears to be neither absorbent nor astringent. And since there are many kinds of it, and some of them said to be poisonous, it seems not to deserve a place amongst the medicinal simples, except as a curiosity.

## C A L X V I V A.

### S E C T. I.

*Calx viva offic.* Quick-lime — is the lapis calcarius, or lime-stone so calcined, as that being put into water it makes a hissing noise, like a live coal, grows hot, splits, swells and turns to mortar immediately, and in time in the open air will also crumble into an impalpable powder like meal. It is caustic, and urinous to the taste.

The lime-stone is the lapis calcarius *Merret.* Pin. 213. Lapis calcarius, seu ex quo calx conficitur. *Geoff.* i. p. 77. Saxum calcarium. *De Boot,* 522. *Worm. Mus.* 45. *Charlt. Foss.* 20. Lapis calcarius offic. *Schw.* 370. *Aldrov. Mus. Metal.* 745. Lime-stone. *Dale,* p. 42. It is a kind of marble, and takes a fine polish: but is not always of the same colour, and solidity, not equally free from heterogeneous substances, particularly sand, or a non-calcareous matter. There are several other substances, as marble, chalk, shells, &c. which by calcination can be reduced to a quick-lime.

Whether

Whether the ſtrength of quick-lime is any way proportional to the degree of heat, and the time its calcination requires; or whether ſtone or ſhell quick-lime moſt ſtrongly impregnates water, I cannot determine poſitively. By the experiments that I have made, there appears to be no difference: nor will I pretend to account for quick-lime growing hot, and taking fire when water is thrown on it. Many attribute this phænomenon to actual fire fixed in it during the calcination. But, whatever is in this, the virtues of lime-water cannot depend on this fire. For this heat is ſoon over; the fire at liberty ſoon vaniſhes. Beſides, if quick-lime be kept ſome time, or not fully calcined, though recent, water does not turn it hot, though it will impregnate itſelf, and become as good lime-water as when it heats it: and moreover the ſecond lime-water, where the heat is never produced, is as ſtrong as the firſt.

I know it is the common opinion, that the firſt lime-water, or firſt infuſion of calx viva is much ſtronger than the ſecond: and that, in order to obtain good lime-water, the quick-lime muſt not only be fully calcined and recent, but alſo for one part of quick-lime only eight, ten, or at moſt twelve parts of water ſhould be taken, as if it could impregnate no more. But experiments have convinced me, that one pound of good, fully calcined, and recent calx viva may impregnate ſome hundred pounds of water, and as ſtrongly too (ſo far as I could diſcover) as it can eight or ten pounds, however paradoxical this at firſt may appear. For,

In *June 1743* I put into a large inverted bell-glaſs between two or three pounds of ſtone quick-lime, and poured on it about twenty pounds of water. In a few days I poured off about ten or twelve pounds of lime-water pretty clear, and threw as much freſh water into the bell-glaſs, expecting it would be weaker, but not free of the lime. But it appearing to be as ſtrong as the firſt, I filled up the veſſel a ſecond time; which not being ſenſibly weaker, I filled up the veſſel a third, fourth, fifth, and I know not how many times, as it needed, for more than two years; during which time I watered a great many plants in pots with it: yet in *December 1745*, it had the lime-taſte, turned the fyr. violarum green, vegetable infuſions yellow, volatilifed ſal ammoniac, gathered cruſts on its ſurface, was as detergent as ever, and no wiſe inferior to the firſt infuſion: nor did it appear to be weaker till midſummer 1746. But ſoon after the lime was quite exhausted, communicating nothing to the water, and I threw it out. But having kept ſome of the ſame quick-lime dried (in a pot) in powder for three years, I put about two pound of it in the bell-glaſs, and filled it up with water: but it communicated nothing to the water; ſuch influence has the air on quick-lime.

In *September 1747* I put into the ſame bell-glaſs three pounds of our common lime, as it comes in powder (being ſlaked at the lime-kilns) pouring on it twenty pounds of water; and had from it as good lime-water, as from the unſlaked quick-lime, though neither heat nor ebullition appeared on the mixture: and I think I may ſay a greater quantity. For though I did not uſe it ſo faſt as the former, I filled it up five times the firſt year; and how often ſince I have forgotten: but it continues as ſtrong as ever to this day (*January 2, 1752.*)



To find how much water quick-lime can impregnate, I put calcis vivæ ʒß. into a China bowl, pouring on it two gills or ʒvij. ʒiij. gr. xij. (the gill measure holding ʒiij. ʒvß. gr. vi. of water when as full as it could hold, or 29<sup>8</sup>/<sub>10</sub> drachms) troy-weight. When it had stood two days I filtered from it a gill of lime-water; and poured on it three gills of fresh water, which I also filtered off after two days. This I repeated twice, and had in all 10 gills of lime-water, *i. e.* 592 times the weight of the lime. The residuum with the crusts in the filter well dried, weighed just gr. xxii. The first infusion was February 20, and the last on the 27th. Hence quick-lime retains its qualities longer in water than in the air: and quick-lime may be washed indeed in a few days, but not by a small quantity of water.

I put also into a bowl, which held about an English pound of water, a calcined oyster-shell of ʒj. weight, and filled it up with water. It did not hiss nor fall down. When a crust was formed on the surface I poured off the water, and filled up the bowl again; which I did to the 30th time, pouring off the water each time on the formation of a crust. Thus this not fully-calcined shell yielded about 400 times its own weight of lime-water: the residuum weighing ʒv. gr. l. though none of the crusts were saved.

I repeated the experiment with chalk-quick-lime, and from gr. 69, managed as above, had more than ʒ 77. of lime-water: and the remaining lime and crusts well dried weighed gr. 65, as if there had been but gr. 1. of lime in ʒ 19 of water. This appears to be an incredible paradox, lime-water certainly containing a greater proportion of lime, as appears by the quantity of crusts it throws up, even after filtration; to which, in its dissolved state, the virtue of the water is owing. For by many experiments I found that four gills of filtered lime-water, by being exposed to the air, in an open vessel, for some days, yielded of these calcarious crusts between eleven and twelve grains, which quantity was not diminished by many repeated infusions, nor increased by slaking recent quick-lime in lime-water; and so it appears to be all that water can take up of quick-lime. But this very much exceeds what the quick-lime lost in the water: which must therefore be owing to the water retained in the lime, though apparently dry; or to the earth of the water; or to something attracted from the air. And,

By various experiments I found that quick-lime once wetted retained a fourth of its weight in water, which no exsiccation without calcination can drive out: but allowing the same to the crusts (though they retained but about an eighth part of water) there are still more than two grains of calcareous matter (deducting the water) separable from aq. calcis filtratæ ʒiijß. which is double the quantity of the lime dissolved by that proportion of water. Again, by the calcination of the crusts and wetted lime, it appeared the air did not contribute any thing observable to their weight; so that what the retained water cannot account for, we must attribute to the attracted or adhering earth of the water. Certain it is that there are few fluids with which lime-water can be mixed, from which it does not precipitate something, out of which our spring-water is not excepted. Does it purify water?

“ Calx viva hoc modo fit: Marmorum buccinorum testas igni condito,  
 “ aut ardenti clibano per noctem immittito. Postera die si candidissimæ fue-  
 “ rint eximito. Sin minus iterum urito, usquedum vehementer inalbuerit.

“ Dein

“ Dein ubi in frigidam leviter eas immerferis, ollæ novæ indito, & exacte  
 “ pannis operiens noctem unam conquiescere finito. Mane calcem perfectò  
 “ omni opere elaboratam extrahito atque recondito conficitur & (ἐκλιθων καὶ  
 “ λακων καίσιμνων) ex silicibus calculisve littoreis igne crematis, nec non &  
 “ e vulgari (χυδαίας) marmore; & hæc quidem cæteris antefertur. . . Efficacior  
 “ porro existimatur quæ recens est, nec aquis aspersa.” *Dioscorid.* l. 5. c. 133. p. 379. Vide *Lemery Chym.* p. 381. *Diët.* p. 101.

Whether quick-lime contains in it naturally any salt is still controverted. The negative appears to be most probable: for nothing of it is dissolved in water, but what may be separated from it in the form of crusts, or of a simple absorbent earth; and when that is done, the water has no other effect than common water.

## S E C T. II.

Quick-lime is absorbent, antacid, detergent and caustic; not to be used in substance inwardly, but enters several potential cauteries, and many soaps. The preparations are, calcis lixivium & calx lota.

“ Calx viva, Græce ἀσβεστος; Arabice herach, nure, nura — Est ignea, mordax, adurens, cumque progressu temporis crustam gignens.” *Schrod.* p. 353. where you have also calx lota, lixivium, spiritus & sp. alcalifatus. *N. B.* “ Si colore cæruleo tincturam ligni nephritici spoliemus beneficio aceti, lixivium calcis vivæ statim fugatum colorem revocabit.” *Hoffman* in *Schrod. Mangeti*, p. 217. This I found on trial to be true, if a great deal of it be used.

The acrimony of quick-lime is entirely owing to the change made on it by the fire (not to any salt in it, nor to fire fixed in it) where it acts in a peculiar manner on animal substances, and alkaline salts. For,

1. It tastes somewhat like alkaline or urinous salts, and unmixed has no smell. Moistened it inflames and corrodes the skin of living animals, but not that of dead ones: flesh buried in slaked quick-lime, soon (in eight or ten days if in small pieces) turns dry and hard like a mummy. Mr. *Reaumur* recommends the stuffing and covering birds with slaked or unslaked quick-lime as a good way of preserving them. *Ph. Transf.* No. 487. p. 313. Its effects in dressing leather is known. Hence not only the taste of quick-lime, but its corrosive property also, in some measure, seems to depend on the change it makes on animal salts. “ Corrosio violenta, quæ contingit in corpore viventis, a calce viva illi applicata, magis pendet ab igneis salinis spiritibus, quos calx viva parit, de sale prius non acri, quam ab ipso corpore calcis rodente.” *Boerh. Chem.* ii. p. 316.

2. Quick-lime, whether slaked or unslaked, effervesces with and destroys acids, vegetable as well as mineral, discovering afterwards a kind of propensity to somewhat like vegetation; so that artificial grottos may be thus imitated.

3. It is a very powerful menstruum, dissolving oils, animal as well as vegetable, gums, resins, brimstone, calculous concretions, &c. Vide *Helmont de Lith.* c. 3. §. 8. *Geoff. Mem. Acad.* 1741. Sulphur principally, *Ph. Londinensis*.



4. It increases the dissolving and corrosive quality of fixed alkaline salts wonderfully. Vide *Boerb. Chem.* ii. p. 61. That great chemist *Homborg* (according to *Lemery, Dist.* p. 187) observes that rock-chrysal cannot be melted even by the burning speculum, unless lime be mixed with it. Thus calx viva dare videtur quod non habet: another paradox.—I have not finished all the designed experiments for clearing this. But it is pretty certain, that soap-lees dissolve the stone, which the strongest solution of any alkali does not: as also that linen, or any thing made of flax, can be long infused even in soap-lees, as well as in lime-water, clear or muddy, without being corroded, or made sensibly weaker; which I cannot say of silk.—But, 5. For lapis septicus see our *Dispensatory & infra*.

6. Sapo albus Hispanicus, Spanish, Alicant, or Castile soap, is a corrosive lixivium of pot-ash and quick-lime intimately united, and rendered mild by oil olive. The consequences of this union, as well as the manner whereby it is accomplished, is sufficiently known; and too long to be here inserted. There are, however, many kinds of soap, differing chiefly in the oils used; the lixivie being much the same. Vide *Boerb. Chim.* ii. 257—60.

The Spanish soap is an emollient, detergent, diuretic, and laxative medicine; recommended internally in obstructions in the viscera, jaundice, gravel, &c. and outwardly for pains, inflammations, tumors, and ulcers. It may be given to ℥j, yea ʒij, every day in some circumstances.

The detergency of soap sufficiently evinces its virtues, except its lithontriptic quality, which late experiments have confirmed. That it may be taken in so large a dose we owe to Mrs. *Stephens's* odd hotch-potch of a remedy; the only benefit the public has had for the 5000 £. paid her for it: For a learned and curious apothecary of London, Mr. *Graham*, informed me, that in the bladder of each of the four persons, viz. *Gardiner, Appleton, Norris*, and *Brighty*, whose cure was certified by the trustees, the stone was found after their death. And we have good reason to believe that Alicant soap has had better success by itself, than it ever had, when confounded with her ill-burnt egg-shells, and other useless stuff. But the best rule of regulating the dose of soap in the stone, is to take so much of it, as just suffices to keep the patient's belly easy, without making it more lax than usual when in health: For what part of it goes off by stool can have no effect on the stone: so that ʒss. may do as much that way as two or three ounces.

7. Calx lota, or washed lime, if it be plain mordacitatis expers, as *Galen* says, is a simple absorbent. But this cannot be made so by two or three washings; nor indeed by seven, or ten, as was sometimes ordered. So that the once famous epulotic unguentum e calce, was not made of a terra mortua, but had nothing in it either malignant, repellent, or astringent; which can be said of few, if of any, of the cicatrisantia; on which account it is now perhaps undeservedly laid aside.

8. Aqua calcis, aqua benedicta, lixivium calcis, lime-water—is water impregnated with as much of the quick-lime as it can dissolve. It is the *κονια* of the *Greeks*, and according to *Galen, De Simpl. Fac.* l. 9. fol. 71. B. the first washings of quick-lime. Some think it also the *τιτανος εν υδατι ως μη ελκωσος*, ordered for the alphas and lepra by *Hippocrat. Pop.* ii. §. 5. Vid. *Rieger Introd.* ii. p. 407. “*Hippocrates, Popular.* lib. ii. sect. 5. says he, ad vitiligi-

“nem

“nem & lepram præcepit adhibendam aquam calcis, sed ita temperatam, “utne exulceret.” But *Foessius* renders it calcem elotam, p. 1046, and *Vander Linden*, p. 708. vol. i. “Calcem in aqua adhibeto ut ne exulceres.” How to make it is easily deduced from what is said above. So that I shall only observe, that even for the first infusion, or aq. calcis prima, it is necessary, after the ebullition is over, to stir and mix well the quick-lime with the water, and to allow it sufficient time to impregnate itself; which is no way so well known, as by the crust formed on its surface. I advise also, that such as prefer calcined shells to stone-quick-lime would first make their lime-water of the last, that being well acquainted with its true taste, they may know by the water when the shells are sufficiently calcined, for it is then free of the foreign nauseous empyreuma.

## S E C T. III.

Lime-water is diluent, detergent, diuretic, antiseptic, vulnerary, and anthelmintic; recommended internally for the scurvy, scrophulæ, asthma, consumption, diabetes, fluor albus, fluxes, gravel, gout, &c. and outwardly for diseases of the skin, ulcers, gangrenes, &c. Dose ℥i. once, twice or thrice a day: or it may be used for common drink, for months or years.

“Aqua benedicta multum facit, in pluribus casibus epota: scil. in facie rubore pustulis, &c. in strumis, asthmate, phthisi, empyemate, dysenteria maligna, tumoribus scroti aquosis, profluvio albo, arthritide vaga, ephelidibus, herpete, gangræna, oedemate, tumoribus genuum & tibiæ, ulceribus omnibus cum affluxu humorum, &c. In diabete curanda optimum remedium. Dosis ℥iij. vel ℥iv. ter in die, vel pro potu communi per mensem.” *Bat. Pharm.* p. 6. And *D. Burlet* in a dissertation de usu aquæ calcis in medicina, commends it in dysenteria, scurbuto, hydrope, chlorosi, quartana, asthmate, atrophia, ulceribus internis & externis, hæmorrhagiis, diarrhœa, gonorrhœa, fluore albo, diabete, obstructionibus omnibus internis, scrophulis, &c. Vide *Rieger Introd.* ii. p. 412. But,

1. Its taste does not always appear the same, even to the same person, being sometimes more sometimes less pungent: but generally it is at first somewhat urinous, then salt, and at last sweet: it has no smell unless mixed with animal or ammoniacal substances, the spirit whereof it extricates.

2. It prevents the corrupting of water, if a small quantity of lime be put into it. I have kept lime-water more than a year, without observing the least tendency to putrifaction in it. So calx viva ℥i. will suffice for a hoghead of water. *N. B. Its usefulness at sea.*

3. It makes no ebullition either with alcalies or acids: it precipitates something from the former, but not from the latter; it precipitates also corrosive sublimate; turns fyr. violarum green; heightens most vegetable infusions, with precipitation; and may be called antacaline, as well as antacid.

4. It kills worms, if not all insects, and is found to be an efficacious anthelmintic.

5. It prevents, resists, or long protracts the putrifaction of animal substances. I kept a bit of fresh beef in it, more than three months quite sound.



It had the same effect on fish. I made also experiments on flesh and fish brines; on serum sanguinis, urine, bile, &c. by all which it evidently appeared to be a very great antiseptic; which its known effects, in several putrid diseases, sufficiently confirm. And therefore that it may be hurtful “in illo scurbuto qui a putrefacto pendet; aut in alcaliscentibus, biliosis, salinis putridis, resolutis cum acri,” &c. (*Boerb. Chem. ii. p. 316.*) seems to be only inanis metus. For,

6. It corrects marine or muriatic salts, not by converting them into a sort of sal ammoniac, or anywise volatilising them, but by disengaging them from such putrescent substances adhering to them, as hinder their acting agreeably to their own nature. (*Boerb. Chem. ii. p. 316.*) In which state salt is found to be a remedy in the scurvy, gravel, &c. rather than any cause of these diseases.

7. It has all the virtues of simple water, on which depend the good effects of mineral waters, as much, if not more than on the minerals they contain. But it much more deterges animal fordes. — What effect has it on starch or ichthyocolla?

8. The lithontriptic virtue of lime-water has been sufficiently evinced by experiments made by Dr. Hales and Dr. Whytt, and are confirmed by such as I made with it, after many infusions, and without any artificial heat, too long to be here related. But, *Dei gratia*, I found it, by my own experience, a cure for a stone in the bladder, which it diminished so much that at last it passed without pain: and I reckon it the best prophylactic against that disease yet known. — To conclude:

9. As for the aquæ benedictæ compositiæ, I think none of them are to be compared with the aqua calcis simplex. I shall only add, that,

As for the lapis septicus, the preparation is commonly known: but the proportion of the ingredients varies. Ours seems to be the strongest. If cin. lb i. and calx viva lbß. or ℥viii. are employed, they will afford no more than caust. ℥viii, though a pound of the cineres alone will yield salis cinerum ℥x. or xii, the slaked lime retaining so much of it. Vide *Lem. Chim. p. 387—89.* We used formerly to make it of soap-lees. In a word, it may be prepared many ways; and still be sufficiently caustic. Vide *Boerb. Chem. ii. p. 60. Pemb. Lond. Dispens. p. 185.* (where there is a causticum commune fortius & caust. comm. mitius) and *Lewis's Pharm. p. 262.* In these London receipts there is a considerable quantity of the substance of the lime, which is not in ours. *Lewis's* process seems to be the easiest and cheapest; and so is the best, if it can conveniently enough be moulded for use. *Lemery* and *Boerhaave* take cinerum p. ii. for calcis p. i. But the *Pharm. Lond.* takes āā p. æ. for the lixivium, perhaps not so frugally. Vide *Lemery* above.

“This, if made of a right ley, is as strong and sudden a caustic as can be, requiring but  $\frac{1}{2}$  or  $\frac{3}{4}$  horæ to perform its work,” says *Lemery*. It is used like the lapis infernalis. “The caust. commun. fortius is preferable to that called the lapis infernalis, as it will not liquify like that, by the moisture of the part on which it is applied; and by this means keeps better confined within the limits, in which it is intended to operate. For this reason the lapis infernalis is little used at present by our surgeons; and therefore not

“inserted

“ inserted in the Pharmacopœia.” *Pemb. Dispens.* p. 185. Their lapis infernalis was made of soap-ley only.

“ Lixivium recens, dum igne ebullit, injecta fere quæcunque animalium mox consumit in liquidum, quia & pleraque vegetantium, fossilia tandem sulphura quoque. Homo infortunato illapsus in ahenum undans flamma, hoc lixivo plenum, consumptis vestibus, & omnibus partibus mollibus corporis sui, sola ossa dedit reliqua.” *Boerb. Chem.* ii. p. 61. A waiter at the *Netherbow*, some years ago observing a surgeon’s prentice with a bottle of this lixive in his hand, which he brought from *Leith*, took it for brandy, and though the boy told what it was, and his danger if he tasted it, yet he took a mouth-full of it, and died most miserably that night, notwithstanding all that could be done to relieve him. This I had from Mr. *John Douglass*, surgeon, who was the person, who had brought the lixive from *Leith*, and was then *Hugh Paterfon*’s prentice.

There are so many new and useful discoveries that I have made about quick-lime and lime-water, that I design to print a dissertation on them, as soon as I can; wherein you shall have the experiments, &c. fully.

## G L O S S O P E T R A.

### S E C T. I.

*Glossopetra offic.* Dale, p. 378. *Glossopetra*, *De Boot. Worm. Mus.* 67. *De Laet.* 103. The tongue-stone, or tooth-stone.

This stone is very smooth, flat and commonly triangular, with a thicker rough base, dented on two sides; but there are of them of different figures, as well as sizes and colour; all very hard and without taste or smell.

Such stones are found in various matrices, as in alum-mines in *Luneburg*, in sand near *Deventer*. *De Boot.* “ In variis matricibus latent, ex mineris car-bonariis.” *Merret.* “ In a whitish earth in *Malta*, among shells in the earth about *Angers*. *Lemery Diss.* p. 239. Some have fancied they were thunder-bolts; others that they were petrified tongues, teeth, &c. of serpents; others make them the teeth of the white shark. *Wormius* thinks some of them petrifications, others originally real stones. Many of them certainly resemble sharks teeth: but are any sharks teeth so large as are some of these stones? I have one of more than 3½ lb. weight, though a part of it is broken off: and *Wormius* had one of 3½ lb. and four inches and an half long.

*Canis carcharias offic.* Dale, 378. *Canis carcharias*, seu lamia, *Rondel. Gesn. Aldrovand. Tiboronus* recentiorum: The white shark, *R. Syn. Pisc.* 18. It is sometimes 4000 lb. weight, and so big as to swallow a man entire; and *Rondeletius* thinks, this was the fish which swallowed *Jonah*.

“ Sententiam hanc confirmat fabula illa poetica, apud *Lycophronem*, de Hercule trinocle, quem deglutivit tritonis *καρχαρος νωων*, quæ proculdubio historię huic de *Jona* originem suam debeta. Vide *R. Syn. Pisc.* 19. Tum mare Mediterræneo, tum in oceano reperitur. Usu dentes serpentis, & dentes ejusdem petrifacti glossopetrę offic. dicti.” Dale l. c. In *Hist. Acad.* 1741. p. 34. there is an account of a lamia piscis, caught at the islands of



St. Margaret, which weighed 100 quintals, in the stomach whereof was found a horse still entire.

## S E C T. II.

They are only kept in shops as curiosities; but useless in medicine. Are they absorbent? “Dentes adversus venena æstimantur. Eos mulierculæ e collis puerorum suspendunt, quoniam dentitionem juvare vulgo creduntur, puerorumque arcere vapores.” *Rondel.* “Glossopetræ vim alexipharmaca cum obtinere a quibusdam creditur.” *Dale* l. c. “Glossopetræ vis alexipharmaca a quibusdam tribuitur, apud nos rarioris est usus. Eas mulierculæ collis puerorum appendunt, quoniam dentitionem juvare vulgo creduntur.” *Geoff.* i. p. 85. from *Dale* misunderstood. “I believe they are absorbent, sweeten acids, and stop vomiting and purging. Dose a ʒß. ad ʒj.” *Lem. Diæt.* p. 240. What the Glossopetra, *Plinii*, l. 34. c. 10. p. 899. l. 36. is, I know not.

## L A P I S A Æ T I T E S.

## S E C T. I.

Aëtites, lapis aëtites, aquilæ lapis, *offic.* Aëtites, *De Boot*, 375. *De Laër.* 114. *Worm. Mus.* 77. Aëtites seu aquilinus lapis. *Charlet. Fossil.* 31. “Aëtites, *Aldrov. Mus. Metal.* 580. Aëtites, aquilæ lapis, *offic.*” *Dale*, p. 43. Eagle-stone.—This is a roundish most commonly, or oval stone, somewhat rough without, smooth and hollow within, containing another stone which makes it rattle when shaken, of different colours and sizes, and insipid.

“Αἰτῖτης λίθος alio dum quatitur intra se, ac velut in utero sonante prægnans.” *Dioscorid.* l. 5. c. 161. p. 388. *Saracen* observes that this chapter is wanting in some copies. I cannot find aëtites in *Oribasius*. “Aëtites lapis agitatus sonitum edit, velut ex altero lapide prægnans.” *Aëtius Tetr.* 1. *Serm.* 2. c. 32. p. 69. This chapter is almost verbatim the same with that of *Dioscorides*; only in the end in place of “Comitiales magnifice juvat,” *Dioscorid.* it is “Magnopere prodest arthriticis & paraliticis,” in *Aëtius*. “Tribus primis, & quinto aquilarum generi, inædificatur nido lapis aëtites, quem aliqui dixere gagaten, ad multa remedia utilis, nihil igne (al. inde) deperdens. Est autem lapis iste prægnans, intus cum quatias, alio velut in utero sonante; sed vis illa medica, non nisi nido direptis.” *Plin.* l. 10. c. 3. p. 234.

It is found in Germany, Spain, Italy, &c. But the oriental are most esteemed; so that one of them, as big as an apricot, says *De Boot*, sometimes will sell at 20 dollars, p. 379. “These stones are brought by the pilgrims of St. James of Campostella in Galicia, wherewith they provide themselves in their passage over the Pyrenees.” *Savary Diæt.* i. 51. *Dioscorides* mentions one kind only; *Pliny* l. 36. c. 21. p. 875. four, an African, Arabian, Cyprian and Leucaian; *De Boot* describes three sorts; *Wormius* has three others more.

more. Vide *De Laet*. "Aëtites lapides, ex argumento nominis magnam famam habent. Reperiuntur in nidis aquilarum, aiunt binos inveniri marem & foeminam. Nec sine iis parere quas diximus aquilas, & ideo binos tantum." *Plin.* l. 36. c. 21. p. 875. Vide *Quincy Pharm.* 164. *Gul. Laurembergius* wrote an *Historica Descriptio Aëtites seu Lapidis Aquile*, printed *Roßochii* 1627. in 12mo.

## S E C T. II.

It is said to prevent abortion tied to the arm, to forward delivery tied to the thigh, procure favour, discover poison, detect theft, &c. Vide *De Boot*, p. 378. It seems to contain a vitriolic ore; and so is subastringent, otherwise it is useless in medicine.

"Partum promovet, si foeminibus alligetur, sin brachio eundem retinet: observare autem expedit, statim a partu esse removendum, ne & uterum ad se trahat." *Schrod.* p. 352. All this and much more is to be found in *Dioscorides*, *Pliny*, *Aëtius*, and many of the moderns also. But I find not this stone in *Hippocrates*, *Galen*, *Oribasius*, or *Paulus*.

"Aëtites gravidis, quibus lubricæ, & parum tenaces sunt vulvæ partus continet, sinistro earum brachio adalligatus; sed cum parturiunt e brachio removeatur, ac sæmur alligetur, ut citra dolores pariant. Furem quoque apprehendit, si quis in pane conditum offerat: fur enim commanducata devorare minime poterit. Quin & si cum eduliis coquatur, furem prodere & coarguere dicitur: quippe fur quæ cum eo decoctum fuerint haud quam glutire poterit. Porro tritus, & cerato exceptus Cyprino, gleucino, aut alio quopiam excalfaciente (ἐπιληπτικῆς) comitiales magnifice juvat. *Doscorid.* l. 5. c. 161. p. 388.

"Aëtitæ omnes gravidis adalligati mulieribus vel quadrupedibus, in pellis sacrificatorum animalium, continent partus, non nisi parturiant removendi; alioqui vulvæ excidunt. Sed nisi parturientibus auferantur, omnino non pariunt." *Plin.* l. 36. c. 21. p. 875.

"Aëtitem parturientibus peculiariter dicatum testatur Plinius & Galenus, non refraganti experientia. . . Est enim mihi Geodes parvulus, ovi columbini magnitudine, cujus effectum in casibus desperatis, multæ honestæ matronæ sæpius viderunt. Sed ubi partus exciderit statim amovendus. Observeavit enim Valeriola tam vehementer trahere, ut una uterus excidat, ni mature removeatur, quod, eo referente accedit Valentiaæ conjugii Ponsoni Jouberti quæ oblivioni tradens lapidem femori alligatum, elapsa matrice extincta est." *Worm. Mus.* p. 78. The midwife perhaps laid her own fault on the stone, as *Armanus* hints, in *Dale* l. c. and Mr. *Geoffroy* enlarges on, quasi ex propria pharetra. N. B. *Valentiana* in *Dale*.

"Alexandriæ etiam tanta lap. aëtites abundantia reperitur, ut eo naves onerari queant; inde olim mercatores Romani devehebant. . . Furem apprehendere volentes Græci, omnes furti suspectos, simul evocare solent, multis ceremoniis rem peragentes; admurmurant enim *Colcieri* multa verba, dum massam pinsunt sine fermento, e qua parvos panes conficiunt, ovi magnitudine, horum singulis qui conveniunt, terni totidem boli, nullo

Vol. I. N n "potu



“ potu addito, deglutiendi præbentur. Id experimentum nos fieri vidimus :  
 “ atque qui furtum commiserat, nunquam tertium panem devorare potuit ;  
 “ quinimo dum deglutire nititur, parum abfuit quin suffocaretur, propterea  
 “ rejicere coactus est. Monachi Græci id observant tanquam peculiare secre-  
 “ tum nec cuiquam communicare volunt. Intelleximus tamen illos lapidis  
 “ aëtitis pollinem suæ massæ, dum panes hos conficiunt, inspergere.” *Bellon.*  
 l. 2. c. 23. p. 97. *Supposing this to be a fact, it is easily accounted for.*

## L A P I S B E L E M N I T E S.

## S E C T. I.

Belemnites, Lyncurius, lapis Lyncis *offic.* Belemnites officinarum, Lyncurius & Daetylus Idæus. *De Boot*, 476. Belemnites & Daetylus Idæus. *De Laet.* 150. Belemnites Gefneri. *Worm. Mus.* 70. Belemnites, *vulgò* the thunder-bolt. *Merret. Pin.* 211. “ Belemnites. *Aldrov. Mus. Metal.* 618. “ Lapis Lyncis, Belemnites, *offic.* Thunder-bolts.” *Dale*, 44. Belemnites, Daetylus Idæus, Lapis Lyncis *offic.* *Geoff.* i. p. 82.

The belemnite or arrow-stone, is an hard, tapering, long and round stone, ending in an obtuse point, with a longitudinal chink and transverse striæ, of different magnitudes and colours.

There are white, amber-coloured, brown, and black belemnites ; some smaller than a child's finger, others thicker than a man's arm ; some hollow, others solid ; some opaque, others semipellucid ; some odoriferous when heated, others not so, &c. What I tried in the fire smelled somewhat bituminous.

They are found in Britain, Germany, France, Italy, &c. and are called belemnites from their figure, and lyncurius from their fabulous original. Vide *uccinum*.

## S E C T. II.

Some commend it as a remedy for the night-mare, and pleurisy ; others for the stone and gravel : To me it appears to be good for nothing in physic. “ Adhibetur ad calculos frangendos, non aliter quam lapis Judaicus. Curat “ vulnera ; putatur etiam ad pleuritidem (quia mucronem habet) valere. “ N. putant lapidem hunc potum, contra ephialtis suppressiones, noctisque “ ludibria valere, ac facinationibus succurrere.” *Schroder.* p. 360. “ Germani “ contra incubum, & nocturnas oppressiones valere putant ; ad vulnenumque “ consolidationem commendant.” *Worm. Dale.* “ Germani belemnitem contra incubum & renum calculos valere credunt ; eumque pulverisatum a ʒʒ. “ ad ʒj. in liquore competenti exhibent.” *Geoff.* i. p. 83. I calcined it in a “ common fire ; it became white and very brittle ; but not calx viva. Is it when thus calcined absorbent ?

## LAPIS JUDAICUS.

## S E C T. I.

*Lapis Judaicus offic.* *Lapis Judaicus.* *De Boot* 408. *De Laet.* 136. *Charlet. Fossil.* 29. *Judaicus lapis.* *Worm. Musf.* 69. “*Lapis Judaicus.* *Aldrovand. Musf. Metal.* 711. *Gesn. de Lapid.* 128. *Spinus Echini.* *Woodw. Att.* tom. 2. “part 2. p. 19. *Echini marini ovarii dicti spinulæ petrefactæ esse videntur.* *Dale,* 44. *Jews-stone.*—This is very hard, resembling an olive in figure, but striated most artfully lengthways, shining within, breaking not transversely but obliquely; and having sometimes at one end a short pedicle; without taste or smell; and of a whitish ash-colour.

This stone is found not in Judea only, but also in Saxony, Silesia, &c. There are several stones of the same grain and consistence, but differently figured, as the trochites, columnuli, stellæ Judaicæ, &c. some of which are found in Britain.

“*Judaicus lapis in Judæa nascitur, glandis effigie candidus, perquam eleganti forma, discurrentibus lineis æquali spatio inter se distantibus, & quasi industria detornatis. Dilutus nullam qualitatem manifestam gustui representat, attamen ciceris magnitudine, solutus ad cotem, colyrii instar, cum aquæ callidæ cyathis tribus, potu urinæ difficultati auxiliatur, & vesicæ calculos frangit.*” *Dioscorid.* l. 5. c. 155. p. 387.

“*Tecolithos, oleæ nucleo similis videtur. Neque est ei gemmæ honos: sed lingentium calculos frangit, pellitque.*” *Plin.* l. 37. c. 10. p. 901. l. 25.

“*Utuntur ad vesicæ lapides, in cote solventes, & ex aquæ calidæ tribus cyathis potus præbentes. Sane in quibus nos experti sumus, proficit nihil, quo ad lapides vesicæ pertinet; verum ad eos qui in renibus hærent, efficax est.*” *Galen. Simpl.* l. 9. p. 67. F. It is the lapis Syriacus *Ætlii Tetr.* 1. *Serm.* 2. c. 19. p. 67. Supposed to be also the eurhoses, as well as tecolithos *Plinii*, by *De Boot. Worm. Charlet.* but I find not eurhoses in *Pliny*. There is indeed among his gems euros. “*Euros nucleo olivæ similis est, striatu concharum modo, non adeo candida.*” l. 37. c. 10. p. 899. l. 22. “*Plinio euros, quod urinam effluere faciat, & tecolithos, quod calculum resolvat.*” *Worm. Musf.* l. c.

## S E C T. II.

It has been long commended as a diuretic and lithontriptic: I think there is reason to doubt (or rather disbelieve) both, *Venia patrum*. However it is antacid, absorbent; and calcined becomes calx viva pretty soon, requiring no long calcination.—“*Medetur difficultati urinæ, calculos vesicæ, præcipue renum rumpit, tritus exhibitus. Præparata.* 1. *Præparatus fit* l. c. 2. *Sal.* 3. *Magisterium.* 4. *Oleum.*” *Schroder.* p. 358.

1. It is a hard indigestible stone, and must be calcined before it can be dissolved in any acid. Vide *Schrod.*—Can it be reduced to a calx viva? Yes. Vinegar is found to dissolve it (though not very soon) even without heat.



In a hot crucible it soon splits and flies off, if it be not covered; and may in few minutes be turned into calx viva.—Is it a kind of gypsum? No.

2. The virtues attributed to it are incredible, not being sufficiently attested. *Dioscorides* says it breaks the stone in the bladder: *Galen* found it had no effect there. Yea some of the antients make it lithontriptic, even outwardly applied. “*Nekephus* tradit hæc verba. Tecolithum lapidem cum aqua terito, “ad sordium strigmentitiorum tenuium crassitudinem, & derafis circa vesicam “& pubem pilis, illinito, & confringet & liquifaciet calculos in vesica. Unde “& cautelena orta est: salve pelagus Arabiæ Claudum medelam pro- “ferrens insigniter tecolithum.” Vide *Le Clerc* H. 87. *Ætlii Tetr.* 1. *Serm.* 2. c. 19. p. 67. Its effect in gravel in the kidneys I attribute to the warm water. And—3. It would have retained its character and use, if it had any effects in these diseases.

Mr. *Geoffroy* has accounted for its diuretic virtue, by which stones may be brought away. “Huic lapidi vis lithontriptica tribuitur. Sed de tanta vir- “tute dubitamus. Revera vim diureticam lapidi lyncis, lapidi Judaico, ocu- “lis cancrorum, & aliis quibusdam medicamentis, quæ lithontriptica di- “cuntur, denegare non possumus; illam enim experientia demonstrat . . “Cum enim horum lapidum fixioribus terreis particulis, sales in corporis hu- “mani liquoribus luxuriantes misceantur, earum consortio fixiores fiunt, ac “proinde difficilius, per cutis poros remotissimos propelluntur. Longe faci- “lius vero per renum colatoria in præceps ita ruunt. Itaque prout per cutis “poros minuitur eorum insensibilis perspiratio, major fit per urinas eorundem “excretio. Deinde vero ex uberiori feri urinosi ad renes affluxu, si quæ sit “in his partibus saburra, eluitur & urinæ turbidæ fiunt; quin & arenulæ “grandiores, modo satis pateant viæ, ab effluente liquore abripiuntur. Sic “horumce lapidum, vis diuretica concipi potest; lithontripticam vero neque “experientia neque ratio hæcenus demonstraverunt.” *M. M.* i. p. 83.—But here are many supposita non supponenda; as ( $\alpha$ ) that experience has found the stones diuretic; ( $\beta$ ) that they enter the lacteals; ( $\gamma$ ) that their more fixed earthy particles unite with the human salts, and render them more fixed, all which are evidently false in fact; ( $\delta$ ) that thus they cannot so easily go off by the pores of the skin, as by the kidneys; and ( $\epsilon$ ) that perspiration being thus diminished, urine will be increased. But how is the perspiration diminished? He won’t say these more fixed salts stop up the pores; and consequently they cannot hinder the more thin lymph or materia perspirabilis to pass them: so that it must be by thickning the lymph.—Will this thickning the lymph increase the quantity of urine? Would it not rather diminish its secretion in the kidneys? But it is enough to say, these indigestible stones in acido solvantur, and never go further than the primæ viæ, to overturn all this reasoning jargon. It had been as easy for him to have asserted the lithontriptic virtue of these stones, and explained it, by the action of the small stones in a hen’s gizzard; whereby the calculi may be grated down to powder, by their hardness, and the roughness of other parts. “Lithospermum, ut “oculi cancri, vitrum, & alia terrea, quæ nunquam tam exquisitè levigari “possunt, ut non maneat asperum quid, quod abstergit, & radit, mover “ergo urinas, non fundendo sanguinem, sed propellendo & quasi everrendo “fordes illas, quæ vias urinarias obsident, & fluxum urinæ morantur.”

*C. Hoff.* p. 318. This is equally philosophical with Mr. *Geoffroy's* explication of the diuretic virtues of the lapides Judaici, &c. The dose lapidis Judaici according to *Lem. Dist.* is a ʒss. ad ʒss. According to Mr. *Geoffroy* ad ʒj. levigated into a fine powder.

## L A P I S L A Z U L I.

## S E C T. I.

1. Lapis lazuli *offic.* Lapis lazuli. *De Root.* 273. *Worm. Mus.* 65. *Charl. Foss.* 27. *Geoff.* i. 87. Cæruleus lapis. *Matth.* 932. "Lapis cyanus, five lazuli. *Aldrov. Mus. Metal.* 870. Lapis lazuli *offic.*" *Dale*, p. 40. Cyanus feu lapis lazuli. *De Laët.* 90. "Lapis lazuli, a *Græcis* κυανος λιθος, a *Latinis*, cæruleus lapis; ab *Arabibus* Hager aut Azul (azur. *Worm.*) unde nomen "azuri aut lazuli deductum est, appellatur." *De Boot.* p. 274. Azure-stone. — This is of a fine blew sapphirine colour, and adorned with gold points or sparks: It is found in mines.

"Opacus est hic lapis, sapphiri colore, aut florum cyani, aureis punctulis, aut flaminulis exornatus." *De Boot.* "Armenio durior." *Schrod. Dale.* "It is mixed with the rock or gangue, and feeded with some spangles of gold and copper. It is found in the quarries of the East-Indies and Persia; and also, as is said, in gold-mines." *Lem. Dist.* 295. — "Durus est florum cyani cærulei colore, aureis argenteisve punctulis & venulis exornatus. Ex fodinis aureis, argenteis & cupreis eruitur." *Geoff.* i. 87. I have seen none silvered. "Lapis est durus, colore florum cyani cærulei, aureis punctulis & venis exornatus." *Worm.*

There are two kinds of it; (*a*) one which is fixed in fire, or that does not lose its colour in it, called oriental, and brought from Asia or Africa: from this is got the ultramarine, a colour more precious than gold, which no time alters; (*β*) and one that is not fixed in the fire, found in some places of Germany, and called *laserstein*, of a middle nature between the former, and lapis Armenus; ("hoc enim durior est, illo mollior." *Worm.*) from it is separated the blue colour, called azure-blue, better than what the Armenian stone yields, and sometimes as fine almost as the ultramarine; but it does not keep its colour long. "Solus ultramarinus, qui ex orientali lapide fit, ab igne non corrumpitur, & ætate non mutatur." Vide *De Boot.* 274. Vide & *Savary Dist.* i. p. 202. & ii. 940. where he observes that there are ultramarine at 50 crowns *per* ounce, and another sort of it that costs but 10 or 12 livres. He gives also a short account of the process for separating the ultramarine. See *De Boot's* way, p. 278—292. and *Zwelfer's Pharm. Aug.* p. 417.

"Lapidem lazuli *Plinius* l. 37. c. 9. videtur sapphirum vocare, quia sapphirum susquam pellucidum facit, & aureis punctis collucere scribit, quæ profecto nostro sapphiro pellucido non conveniunt, sed optimo lapidi lazuli. . . . *Plinii* cyanus nostra sapphirus videtur, quia eam adulterari tinctura tradit, &c. *De Boot.* 273. "Sapphirus autem est quasi stillis aureis com-puncta, ωσπερ χρυσοπαστος. *Theophrast. de Lapid.* fol. 9. a.

2. Lapis.



2. Lapis Armenus *offic.* Lapis Armenus. *De Boot.* 292. Lapis Armenus. *Worm. Mus.* 66. *Charlet Foss.* 27. Azurum sive Cæruleum fossile in *Scotia. Cambd. Merret. Pin.* 218. "Armenium. *Aldrov. Mus. Metal.* 351. Lapis "Armenus officinarum. *Woodw. Att.* tom. 1. 195. No. 26. Armenian stone. "Woodward. Copper-ore of a sky or pale-blue colour." *Dale.* p. 40. — The Armenian stone is opaque, smooth, pretty compact yet friable, of a sky colour, without any gold points or veins in it, and unfixed in the fire; found in Germany, Hungary, Transilvania, in silver-mines, as is said above.

"Lapis Armenus lævis est, colore cœlesti, bene unitus, fragilis tamen, "qua nota a lapide lazuli distinguitur, aureis etiam venis caret, neque ipsius "color igni resistit. Germanice vocatur *Berglau*, Gallice *Verd-azur*, quasi dic- "cas cæruleus color viridi commixtus. Tendit enim cæruleus iste color ad "viriditatem gratam. Quin etiam tandem in viridem colorem ætate, dum "tabulis appictus est degenerat. Duritiem non habet quam lapis lazuli, atque "arenosum quippiam continere videtur. Chrysocollæ quam Germ. *Berg-* "grüen appellant, admodum similis est, verum plus cærulei habet: sæpe con- "nascuntur. Habeo frustum, quod utrumque lapidem habet." Vide *De Boot.* p. 292. "Lævis est colore cæruleo, friabilis, ad viriditatem inclinans. Vete- "res varie eum describunt. Dioscorides & Avicenna, colorem ei attribuunt "cæruleum: Plinius viridem esse ait ut chrysocolla, sed admisto cæruleo. "Mesues meliorem esse ait, qui habet colorem intermedium inter viridem & "obscurum terreum & Indum, & habet macularum distinctiones virides & "nigras, & qui non est lapidosus, sed facilis dissolutus in pulverem, & qui est "tactu lævis, carens asperitate." *Worm. Mus.* p. 66.

"Est lapis maculis viridibus, cæruleis & subnigris, relucens sicut lapis la- "zuli, punctis aureis, adeoque non differunt inter se, nisi sola maturitate, "uterque eum in unis iisdemque scaptensulis reperitur, lazuli tamen lapis ceu "maturior crebrius invenitur in fodinis aureis; Armenus in argenteis." *Schrod.* 352. *Dale* begins his account of this stone with *Opacus*, and takes all the rest from *Schroder*. — "Opacus est lapis, maculis viridibus, cæruleis & "subnigris, lævis & sicut lapis lazuli punctis aureis insignitus, friabilis, "a quo parum discrepat, & sæpius cum eo in eadem glebâ reperitur. Unde "a quibusdam indiscriminatim usurpatur uterque." *Geoff.* i. p. 89. (Ex gr. in *Pharm. Leidenens.*) "Armenus lapis, seu melochites, is a stone of diffe- "rent figures and sizes, but commonly round, irregular, rough, of the bigness of "a nut *des couleurs mêlées, bleue, verte, blanche, luisante* . . . It differs from lapis "lazuli in being less blue, more fixed, without impurities, and coming from "silver-mines; while the lapis lazuli is found in gold-mines." *Lem. Diët.* p. 51. "Est diversæ magnitudinis & figuræ, ordinarie tamen est crassitudinis "avellanæ, fere rotundus, asper, ex gravis quasi grumis constans, lævis, fria- "bilis, splendens, coloris mixti cærulei, viridis & albi." *Nucl. Belg.* 158. "It "is a little stone of a greenish-blue colour, with many small whitish, and "shining particles, like diamonds, in it. Of it powdered and washed, is made "the *cendrevert*, or *verdbleu*." *Savary Diët.* ii. 1092. Vide i. 145. *Reconcile these accounts!*

## S E C T. II.

They are emetic and cathartic; called melanagoga; and commended in mania, melancholia, epilepsy, quartan agues, &c. though seldom used.

"Lapis

“ Lapis Armenus desiceat mediocriter, extergit cum levicula acrimonia  
 “ & levissima adstrictione. Interne purgat sine noxa humorem melancholi-  
 “ cam, ἀνω καὶ κάτω. Verum si multoties (12 aliis 50) lotus fuerit purgat  
 “ solum per inferiora. Hinc conducit in mania, melancholia, epilepsia, &  
 “ similibus. Dosis ʒj. ad ʒiv. Extrinsecus miscetur medicamentis oculari-  
 “ bus, & psilothris palpebrarum. *Præp.* Lapis lotus, pilulæ & magiste-  
 “ rium.” *Schrod.* p. 353.

“ Lapis lazuli viribus convenit, cum lapide Armenio, sed imbicillius eas  
 “ exercet. Purgandi facultate præditus est, præcipue contra melancholicos  
 “ omnes affectus, quartanam, apoplexiam, epilepsiam, lienis vitia aliosque  
 “ complures a melancholico succo originem ducentes. Dosis ʒj. in polline  
 “ subtilissimo. N. pro amuleto etiam de collo gestatur, ut puerorum terricu-  
 “ lamenta arceat, oculorum aciem roboret, syncopen & prægnantium abortum  
 “ præcaveat. Verum partu appropinquante, ne fœtum retineat, auferendus  
 “ est. *Præp.* Lapis lotus multoties, magisterium, elixir, oleum seu liquor,  
 “ & essentia sive extractum.” *Schrod.* p. 359.

For 1. The locus natalis, colour, weight, &c. seem to point out somewhat  
 of copper, or of a demi-metal in them. “ Elicitur ex lapide armeno æs ad-  
 “ modum sulphureum. Et si affundatur lapidi lazuli spiritus urinosus effer-  
 “ vescit, indicio venerem esse admixtam.” *Albin. M. S.* — 2. Before *Alexander*,  
 the antients seem to have used them chiefly, if not only, externally, as escha-  
 “ rotic, &c. “ Cyanus uritur ut chalcitis, & lavatur ut Cadmia. Vim ha-  
 “ bet reprimentem, & modice septicam, escharoticam, ut & exulcerantem.”  
*Dioscorid.* l. 5. c. 106. p. 366. “ Armenion eadem quæ chrysocolla præstat;  
 “ distat hoc uno quod est inefficacior, sed & usum habet ad pilos in palpe-  
 “ bris augendos.” *Dioscorid.* l. 5. c. 105. p. 366. “ Cyanus acri facultate  
 “ est, tum cathæretice tum digerente potentiori quam cinnabari. Inest quo-  
 “ que ei nonnulla adstrictio.” *Galen. Simpl.* l. 9. p. 69. H. “ Cyanus acrem  
 “ & discussoriam ac demolientem consumentemque carnem vim habet, parti-  
 “ cipat & adstrictiora.” *Ætius Tetr.* 1. *Serm.* 2. c. 58. p. 72. And some of  
 the moderns recommend them for foul ulcers. — 3. The operation of the  
 lap. laz. &c. depending on the pigment, which is often mixed with the rock  
 and other impurities, the richer they are of the colour, they must be so much  
 the stronger. Hence the dose must be uncertain; as we find authors differ  
 much about it. *Alexander* (l. 1. c. 17. *De Melancholia* p. 166.) orders lap. Ar-  
 meniæ non loti ad ʒiv. as an emetic, and loti ad ʒij. as a purgative in that  
 disease. Whereas *Ætius* (*Tetr.* 1. *Serm.* 2. c. 47. p. 71.) from Nechepsus  
 makes its dose in melancholy only gr. v. or vi. and in the epilepsy ʒj.  
 “ Nechepsus de eo sic tradit: Armenium quo pictores utuntur, duodecima  
 “ drachmæ parte melancholicis & crassum sanguinem habentibus dato . . .  
 “ vomitorium existit. Datur & morbo sacro obnoxiiis, ac furiosis hoc modo,  
 “ &c.” Vide *locum*. However, generally the moderns make dosis utriusvis  
 non loti a ʒß. ad ʒj. and loti a ʒj. ad ʒij. In *Pharm. Batean.* the dose is ʒß.  
 ʒj. ʒiß. Vide doses purgantium annexed to *S. Pauli's* Quad Bor. “ L. Armeni  
 “ dosis a gr. vi. ad ʒj.” *Geoff.* i. p. 89. — 4. Authors differ also as to the  
 number of lotions, ordered by *Alexander*, some reading 12, others 50 times  
 washed. But that washing can be of any use in diminishing the acrimony and  
 violence of the stone does not appear to me to be probable; for if the im-



purities or heterogeneous substances be carried away with the water, what remains must be more acrid or stronger, and a smaller dose suffice: but if the colour be separated what remains is dross and useless. “Quidam aquæ ablutione virtutem lap. lazuli erodentem & emeticam corrigi asserunt, sed perperam. Lotus enim & non lotus per superiora æque purgat; quin etiam quod eluitur, & quod post lotionem remanet, non differunt nisi tenuitate.” *Geoff.* i. p. 87. True: if nothing be carried away in the water. Upon the whole I agree with *Hoffman*, *Albinus*, &c. that both these stones may be well wanted; and without prejudice to the *Materia Medica* banished the shops. Let those who still retain the lap. lazuli in the confectio alkermes vindicate the practice. *Vid. Geoff.* i. p. 88.

## LAPIS NEPHRITICUS.

### S E C T. I.

*Lapis nephriticus offic.* *Lapis nephriticus.* *De Boot*, p. 259. *De Laet*. 81. *Worm*. 95. *Monard. Clus. Exot.* 325. *Charlet. Foss.* 33. “*L. Indicus nephriticus.* *Aldrov. Mus. Metal.* p. 706. *L. nephriticus offic.*” *Dale*, p. 46. Nephritic stone. — This stone is very hard, semipellucid if thin and polished, of a green colour lighter or darker, and always as if it were greasy; found in America, Spain, and in Bohemia.

“Ea differentia inter jaspidem & nephriticum statui potest, quod hic durior sit jaspide, & nunquam quicquam rubedinis in ipso conspiciatur: deinde quod non exacte poliri possit, semper enim superficies pinguis, quasi oleo inuncta esset, videtur. Raro hic lapis in se duos colores habet; plerumque uno tantum colore; etiamsi magnus sit, tingitur, ac fere semper color in ipso spectatur, qui ex albo & viride simul mixtis coaluit. Dum in planitiem non crassiorem minimo digito redigitur obscure transparent. . . Inveniuntur etiam ex albedine virescentes. Viriditas autem interdum subflava interdum subcærulea videtur: plerumque ex viride, albo, flavo, cæruleo, & nigro colore mixtio est; non quod omnes isti simul misceantur, sed aliqui tantum. Hinc fit tam diversi coloris inveniri. Habeo apud me multa genera, &c.” *De Boot*. p. 259—60. See also *De Laet*. p. 81—5. “Lapis ut plurimum viridis est . . . maculis seu nubeculis quibusdam obscurioribus interstinctus. . . Ex India utraque adfertur, &c.” *Worm. Mus.* l. c. There are many kinds of it. *De Laet* saw a nephritic stone in England as big as a man’s head, valued at 50 £. sterling: and *De Boot* one in the possession of *E. Rudolph II.* which cost 1600 thaleris, and was made into a pretty large cup.

### S E C T. II.

It is a famous amulet with some, for the gravel and nephritic pains. I reckon it useless; and all amulets idle whim-whams.

“Commendatur adversus nephritidis aut stomachi dolores; sed ejus præcipua laus est ad nephriticos dolores, calculumque, & arenulas expellendas.  
“Medetur

“ Medetur his effectibus brachio vel coxendici alligatus, aut de collo suspen-  
 “ sus. Cujus rei gratia armillas inde factas gestare solent. Sole scorpium  
 “ ingrediente insculpunt signum scorpii.” *Scbrod.* p. 336. “ Amuletum est  
 “ adversus nephritidis & stomachi dolores.” *Dale*, 48.

One needs only to read the advocates for its virtues, *Monardes*, *De Boot*,  
*De Laet*, and *Wormius*, to see the folly of such applications, if it be not to  
 please and amuse a weak woman's imagination. For they own every nephritic  
 stone has not a nephritic virtue; and that the same stone may help some and  
 not others. “ Verum cum tot species prodantur hujus lapidis, certumque  
 “ sit, non omnes eadem, & pari virtute pollere, difficilis videtur electio:  
 “ nam Monardes præfert viridiores, in eo genere qui prasio sunt similes, &  
 “ ad viridem colorem vergunt lacteo permixtum. Ximines unicum agnoscit  
 “ & laudat, viridem instar jaspidis, sed punctulis quibusdam candidis variega-  
 “ tum. Boetius commendat lapidem obscure viridem, punctulis nigris con-  
 “ spersum. Alii alios laudant. Ego affirmare possum lapidem coloris pene  
 “ mellei, eadem perfecisse, quæ scribit Monardes; (that is, brought away so  
 “ much sand, that metuens ne noxia tanta dejectio, it was sometimes laid  
 “ aside.) Itaque experientia, in diversis subjectis facta, hic potius obtinebit,  
 “ quam gemmariorum judicium.” Vide *De Laet*. l. c. *Wormius* says, some  
 think it more efficacious if set in silver; others that the metal diminishes its  
 virtues, “ Sed ego efficacissimum vidi argento clausum, vires suas valide  
 “ exercere, quod melioris notæ, says he, esse didici, obscure viride est, pingue  
 “ oleosum, quod ad splendorem solis, aut candelæ examinatum, maculas vi-  
 “ rides obscuriores, in albo aut subluteo corpore, exhibet. Hujus vires in-  
 “ signes in calculo pellendo, haud raro expertus sum. Novi virum in hac  
 “ urbe, qui unum possidebat, plane similem huic, nephriticum lapidem,  
 “ cujus vires in seipso sæpius expertus erat insignes, quam etiam ob causam  
 “ carpo alligatam semper gestabat. Sed cum se quodam tempore, balneo  
 “ aquæ dulcis, in quo herbæ quædam coctæ erant, commisisset, madefactus  
 “ hoc decocto lapis vim omnem amisit. Quocirca, adds he, deponendum  
 “ suasere, quando balneum æger ingreditur.” Thus *Wormius* l. c. who con-  
 cludes thus, “ In hujus lapidis viribus explorandis, tutum est consilium Jo. de  
 “ Laet, qui suadet diversas species ejus experiri, & modo carpis, modo reni-  
 “ bus applicare. Nam & ego novi eundem lapidem quibusdam profuisse,  
 “ quibusdam minime: quod an lapidis virtuti, an hominis idiosyncrasia sit  
 “ tribuendum ignoro.” “ The best for nephritic pains ought to be of a  
 “ bluish gray colour, fat and unctuous, like Venice talck.” *Savary Dist.* ii.  
 864. *Wormius's* melioris notæ lapis being made into a thin plate, two inches  
 long and one broad, with four holes in it, the better to tie it to the body,  
 makes me think one of the samples I now show you has been used as a  
 nephritic stone. Upon the whole I think it evident, that nature and not the  
 stone has expelled the sand, when it was supposed most efficacious; and flint or  
 marble, or any thing then applied, would have done as well. Yet we find  
 besides the authors mentioned, others have written of it; as *Augerius Clutius*  
 in his *Calsuce sive Dissertatio Lapidis Nephritici, seu Jaspidis viridis, a quibusdam*  
*Callois dicti, naturam, proprietates & operationes exhibens, quam sermone Latino*  
*recenset Gulielmus Guil. F. Lauremberg.* Rostochii 1627. in 12mo. Also of *Casp.*  
*Bartholini Opuscula quatuor singularia*, (one is *De Lapide Nephritico, & Amuletis*  
 Vol. I. O o præprimis)



*præprimis*) printed *Hafniæ* 1628, and again 1663, both in 8vo. "Historias  
" *varias & experimenta vide in peculiari, de hoc lapide tractatu, conscripto*  
" *a clariss. viro D. D. Casp. Bartholino.*" *Charlet. Foss.* p. 34. Mr. *Geoffroy*  
takes no notice of this stone. And I have mentioned it, only to prevent your  
being imposed on, as I do many other simples, falsely called medicines.

## LECTURE XXXII.

## LAPIDES PELLUCIDI.

## S E C T. I.

1. **C**Ryſtallus *offic.* Cryſtallus, *De Boot*, 217. *De Laet*, 56. *Worm. Mus.* 99.  
*Charlet. Foss.* 35. *Matth.* 963. *Geoff.* i. 89. "*Aldrov. Mus. Metal.* 934.  
" *Kentm.* 46. *Monte Exot.* 14. Cryſtallus *offic.*" *Dale* 41. Cryſtal—is a white  
transparent ice-like ſtone, or ſoft gem, found almoſt in every country, in  
rocks, rivers, and the earth.

It is ſometimes regularly figured; ſometimes not ſo. If tinctured with blue,  
green, yellow, &c. it loſes the name of cryſtal, and is called *pſeudo-ſapphi-*  
*rus*, *pſeudo-ſmaragdus*, *pſeudo-topaſius*, &c. It is not always of the ſame  
hardneſs, or pellucidity; and the hardeſt and moſt pellucid not-tinctured  
cryſtal is called *pſeudo-adamas*. The perfection of cryſtal, as of the precious  
ſtones, conſiſts in its hardneſs, transparency, cleanneſs, and brilliancy or luſtre.  
" *Nascuntur cryſtalli plerumque hexagoni; nam qui rotundi, aut globofi,*  
" *ut ſilices, reperiuntur, illi duriores cryſtallis ſunt, & pro pſeudo-adamante*  
" *habendi ſunt.*" *De Boot*. 219. where are the figures of ſeveral cryſtals. Vide  
& *De Laet*. The Iceland-cryſtal is ſingular, whatever is ſeen through it ap-  
pearing double. However plentiful cryſtal is every where; if the French are  
to be credited, Madagaſcar can furniſh more than all other places put to-  
gether. Vide *Savary, Diſt.* i. 1610. *Κρυσταλλος* ſignifies ice, from *κρυος*, fri-  
gus; & *στέλλω*, contraho. "Contraria huic cauſa cryſtallum facit, gelu ve-  
" hementiore concreto. Non aliubi certe reperitur, quam ubi maxime hy-  
" bernæ nives rigent: glaciemque eſſe certum eſt; unde & nomen Græci  
" dedere." *Plin.* l. 37. c. 2. p. 884. l. 4. "Diodorus Siculus (lib. 3. circa  
" finem) tradit cryſtallum lapidem ex aqua oriri pura congelata, non a fri-  
" gore quidem ſed divina caloris vi, quæ duritiem ſervet variosque colores  
" ſuſcipiat." *De Laet*. 59. Vide *Dalechamp* in *Plin.* 885. not. c.

2. Granatus *offic.* Granatus. *De Boot*, 152. *De Laet*. 17. *Worm. Mus.* 104.  
*Schroder.* 335. *Charlet. Foss.* 37. "Schw. 380. *Mont. Exot.* 14." *Dale*, 48.  
*Geoff.* i. 91. Granate—is a hard pellucid gem, of a deep, ſomewhat yel-  
lowiſh, red colour, fixed in common fire.—It is either oriental, found in the  
Eaſt Indies; or occidental, found in Bohemia, Sileſia, &c. For the varieties  
of theſe ſee *De Boot*, who prefers the Bohemian to the oriental. "Tum quia  
" vitulis carent, tum quia igni reſiſtunt, verisque carbonibus ſimiles ſunt."  
In the ſhops it is in ſmall fragments, reſembling lacca in grains, or in little  
roundiſh ſtones, about the bigneſs of peas, or ſo.—Si lente vitrea majore  
" coad-

“coadunatis folis radiis, supra carbones exponatur in massam metallicam fusa  
“reducitur ferri æmulam, & a magnete attrahitur.” *Geoff.* i. 91. It is among  
the stanni mineræ. *Cramer.* i. p. 219.

3. *Hyacinthus offic.* *Hyacinthus.* *De Boot.* 159. *De Laet.* 27. *Worm. Mus.* 104. *Schroder.* 335. *Charlet. Foss.* 38. *Geoff.* i. 93. “*Aldrovand. Mus. Met.* 962. *Kentm.* 50.” *Dale,* p. 48. The jacinth.—This is a transparent, hard gem, of a reddish-yellow colour; that is a colour compounded of red and yellow, but partaking sometimes more sometimes less of either: hence it is of many kinds.—There are oriental jacinths brought from the East-Indies, and most esteemed; and occidental found in Bohemia, Silesia, &c. that are less valued; but seldom either are to be found in the shops. For the druggists in France and Holland sell for jacinths small fragments of the size of the granates, rather smaller and more yellowish coloured, some bits of which are quite opaque. These they reckon the best; though I know not what they are, if they be not coloured crystal, or pebbles. They sell for it also a reddish stone, naturally cut *en pointe de diamant*, found in Poland, Bohemia, Silesia, &c. which does not at all resemble the jacinth, and is perfectly opaque. *Vide Savary Diſt.* ii. 377. So that there is no reason to doubt, whether the famous confectio de hyacintho has any hyacinthus in it.

4. *Sapphirus offic.* *Sapphirus.* *De Boot.* 183. *De Laet.* 30. *Worm. Mus.* 104. *Charlet. Foss.* 38. *Schrod.* 336. “*Aldrov. Mus. Met.* 971. *Kentm.* 48. *Mont. Exot.* 14.” *Dale,* 48. *Sapphirus, seu Cyanus Plinii.* *Geoff.* i. 94. The Sapphire—is a very hard transparent gem, of a pure and most beautiful blue colour, but not fixed in the fire.—It is the only pure blue transparent gem, that is without all mixture of any other colour; though some are of a lighter, others of a darker blue. It is said that there are white sapphires; and that some by fire deprive them of their colour, to make them pass for diamonds, as coming nearest to them in hardness. The best oriental sapphires come from *Peon.* The occidental are found in Bohemia and Silesia; and are pretty much esteemed, but far inferior to the oriental in hardness, colour, and lustre. *Vide De Boot,* l. c. *Savary Diſt.* ii. 1481.

Druggists sell two or three sorts of sapphires, ( $\alpha$ ) a black one, which is in little fragments, no bigger than small pins heads, resembling more drops of iron than a precious stone: and *Lemery* says a load-stone will discover iron in it.—( $\beta$ ) A red sort in particles about the same bigness as the above. *Vide Lem. Diſt.* p. 484. Granates are, they say, sometimes sold for sapphires.—( $\gamma$ ) And I have seen with them what they called oriental, in larger pieces and somewhat transparent and bluish. *An pseudo-sapphiri?* The name sapphire is said to sound much the same way in Hebrew, as it does in Greek, Latin, and some modern languages. Yet this stone appears not to be the *sappheiros antiquorum.* *Vide De Laet.*

5. *Sardus, Sarda, Carneolus offic.* *Sardius, sive Corneolus.* *De Boot,* 230. *Sarda.* *De Laet.* 60. *Corneolus, vel potius Carneolus.* *Worm. Mus.* 99. *Charlet. Foss.* 35. *Sarda.* *Geoff.* i. 92. “*Sardius lapis, sive Corneolus.* *Aldrov. Mus. Met.* 923.” *Dale,* 45. The Cornelian is a semi-pellucid stone, commonly of a red colour, found in the East-Indies, also in Sardinia, Bohemia, &c. “*Est gemina semi-perspicua, vel semi-opaca, & sanguinis biliosi, vel subci-*  
“*trini colorem exactius, quam carnis sanguinolentæ refert.*” *De Boot.* l. c.—



It is of different colours, being sometimes of a lighter, sometimes of a darker red, sometimes yellowish, &c. I have some pieces most exactly resembling the cornelian cherry: also some with a little red in it. “*Sarda gemma est pellucida, sed quasi pinguedine obducta, colore diverso, &c.*” *Geoff.* i. 92. I have none such.

6. *Smaragdus offic.* *Smaragdus.* *De Boot*, 195. *De Laet.* 33. *Worm. Mus.* 105. *Charlet. Foss.* 38. *Geoff.* i. 94. “*Aldrov. Mus. Metal.* 973.” *Dale* 49. The *Smaragd* or *Emerald*.—This is a transparent gem, of a most perfect and beautiful green colour, which nothing can excel, and nothing equals perhaps in nature. — “*Inter virtutes gemmeas, nulla prestantior, elegantior, & jucundior smaragdo, grato enim suo virore, oculorum aciem ita demulcet, animique ita recreat, ut herbarum omnium viridariorumque amœnitatem longe superet. Pellucida est & diaphana; inque colore ipsius, nil neque cœrulei, neque flavedinis animadvertitur.*” *De Boot*. — Jewellers distinguish three kinds of emeralds, an Oriental, Peruvian, and European. But some distinguish them into oriental and occidental only: and *Tavernier* makes but one species, viz. the Peruvian; asserting that there never was an emerald-mine in the East-Indies; and that all these stones sold in the East came from Peru, by the South Sea, to the Philippine Islands, as well before, as since the discovery of America. But this he cannot prove. The oriental are most valued: the Peruvian have commonly clouds in them. *De Boot* says, the European are found in Cyprus, &c. *Vide Savary Dict.* i. 1856. *Vide etiam De Boot, De Laet,* and especially *Tavernier* in *Harris Coll.* ii. 374.

## S E C T. II.

Crystal is called absorbent and astringent; and is commended in fluxes, hæmorrhages, epilepsy, gout, gravel, &c. I reckon it, and all the precious stones, absolutely useless in physic.

“*CrySTALLUS facultatis est adstrictoriæ, adeoque confert in dysenteria, diarrhæa, cœliaca, cholera, fluxu uterino: præbet lactis abundantiam, atterit calculum totius corporis, hinc prodest & podagricis. Si pulveris ℥ij. vel 3j. pondere cum oleo amygdal. dulcium exhibeatur, curat eos qui mercurium hauserunt.*” *De Boot, Matth. Heer.* *N.B.* Sunt qui crySTALLUM radiis solaribus objiciunt, hisque concentratis cutim inurunt, loco cauterii. *Præp.* 1. *Præparata* l. c. 2. *Sal crySTALLORUM.* 3. *Magisterium.* 4. *Oleum, seu liquor.* 5. *Elixir.* 6. *Essentia.* 7. *Cremor.*” *Schroder.* 355—57. But,

1. It is evidently a hard indigestible substance, neither dissolvable by any acid, nor can it be melted by common fire, yea not even by the *speculum ardens*, unless *calx viva* be added: which is somewhat wonderful; since *calx viva*, by itself, as well as crystal, resists the heat of the most concentrated rays of the sun yet known, according to *Homburg*. *Vide Lem. Dict.* p. 178. I kept crystal red-hot in a crucible for a long time: it soon crackt, and split into pieces, but retained its hardness and pellucidity. I repeated its calcination, and extinguished it in cold water: it then became white and opaque, but continued apparently as hard as ever. *Could it thus be dissolved* in *sp. aceti, vel sp. vitrioli?* *Minime.* *Vide infra.* — 2. It has no effect externally applied, but what depends

depends on the mechanical figure of its parts. For the itching cauſed in the hand of the King of *Denmark*, when he walked with his cryſtal-headed cane (vide *Worm* l. c.) could be owing to nothing elſe but its friction. As to its preventing ſleep, when hung about the neck; quenching thirſt, when kept under the tongue; cooling the heat of fevers, if held in the hand after it has been cooled in water (vide *De Boot*), thoſe are trifles not worth noticing. — 3. Many virtues are aſcribed to it inwardly taken. *De Boot* ſays, cryſtalli pulv. ʒj. in oleo amygdalar. dulcium is an immediate antidote to corroſive ſublimate; that “fluxum præterea cholicum vel cœliacum citiſſime, & a “proprietate, tanquam bezoar aliquod, compeſcit, calculum etiam rumpit, “& per urinam expellit,” (p. 223): that the powder in wine, cures the dyſentery and fluor albus; in wine, honey or broth given to nurſes, it makes plenty of milk, *Ibid.* “Sin autem in tergo, e regione mamillarum applicetur, lac imminuit, id quod D. Jo. Michaelis ſæpius probavit. Medetur “etiam epilepiæ pulveriſata propinata, & ſi collo appendatur, contra vertiginem facit.” *Hoffman* in *Schrod. Manget.* p. 218. Can any body believe all this? — *C. Hoffman* propoſes the queſtion concerning cryſtal, and eight other precious ſtones. “An fragmenta illa pretioſa, præparata ut vocant, poſſint “actuari a calore humano?” and answers, “non magis quam vel pumex “vel filex.” p. 544. Yet cryſtal may be a ſuccedaneum to all the precious ſtones, and on that account it has a place in *our Pharm.* out of which they are excluded. — But 4. Cryſtal in powder may be as much ſuſpected of virulency as powdered glaſs. “Cryſtalli particulæ acutæ ſunt, inter venena mechanica, &c.” *Nucl. Belg.* 93. And *Helmont* ſays, “Vitrum facilioris eſt diſgeſtionis cryſtallo rupeo.” *Pylorus reſtor.* §. 29. No. 11. p. 221. See there, and p. 220. his reaſons for it. “Quinetiam numerantur 6 venena acria mere “mechanica; adamas; cryſtallus montana; limatura ferri; limatura æris; “alumen plumoſum; vitrum contuſum & ſimilia. Hæc pungunt nervos, “vulnerant vaſa; convulſiones, hæmorrhagias excitant, unde ulcera & ſimilia mala.” *Boerb. Inſt.* §. 1142. p. 462. i. e. if they are not ſufficiently leviigated. For it muſt be owned that the pulvis, and eleſtuarium de gemmis Meſue, wherein are the quinque fragmenta; but more eſpecially the conſectio de hyacintho, in which are the hyacinthus, ſapphirus, ſmaragdus, and topazius (though very injudicious compositions) have been long and much uſed, and ſtill are ſo in France (vide *Savary Diſc.* ii. p. 377.) without any known bad effect. But in conſectio de hyacintho ʒj. there are not lapidum gr. ij. and theſe are ſeveral ways inviſcated. Indeed in the pulv. de gemmis ʒj. there are about lapidum gr. iij: the doſe being a ʒß. ad ʒß. according to *Lemery, Pharm.* p. 246.

“Clariffimus Montius, anno 1723, experimentis demonſtravit, quod cryſtallus, nec pulveriſata antequam ignem experta eſſet, nec poſt ſimplicem “calcinationem extinc toriam, neque calcinata prius cum ſulphure, cum nitro, “cum ſale tartari, in pulverem trita, & probe edulcorata, affuſis acidis liquoribus omnis generis, ullam mutationem adferre viſa eſt, etiamſi cum iis “per plures dies digeretur; uno poſt digeſtiones factas, liquoribus affuſis “exempta, & in crucibulo igne reverberii fuſa in vitrum, nihil omnino de “primo pondere ſuo amiſſiſſe obſervata eſt.” And hence he juſtly concludes that cryſtal is nowiſe abſorbent; and has no more effect in medicine than ſilices.



filices igniarii or vitrum, on both which the same experiments were made, and answered the same way; and that therefore it ought to be banished the shops. Vide *Rieger Introduct.* tom. 2. p. 1200. And all the precious stones should follow it. But since Mr. *Geoffrey* declares against this sentence, and stands up in defence of lapidum pretiosorum, let us hear what he pleads for them.

“ Si tamen ad gemmarum colores a metallica substantia tenuissima oriundos  
 “ attendamus, eas non omni virtute destitutas, cum nonnullis, judicabimus,  
 “ sed in iis quasdam inesse vires, quas a metallis mutuuntur confitebimur.—  
 “ Objici potest gemmarum fragmenta esse corpora durissima, quæ stygiis  
 “ aquis, ut plurimum, resistunt, ac proinde ventriculi fermento indissolubilia,  
 “ quæ eodem modo quo assumuntur, rejiciuntur. Verum hæc obiectio nul-  
 “ lius est momenti. Nam smaragdus, prunis impositus sicut sulphur, accen-  
 “ ditur, & viridi colore cum flamma exhalato, diaphanus remanet, & sine  
 “ colore, crystalli adinstar. Constat autem ex hoc experimento, duplici parte  
 “ gemmas componi, crystallina nempe una & fixa, sulphurea altera & volatili.  
 “ Constat etiam hanc partem facile exhalare, illa integra remanente. Equi-  
 “ dem quod in eodem experimento ignis ope peragitur, idem ope caloris na-  
 “ turalis, & lymphæ stomachalis peragi potest. Licet crystallina gemma-  
 “ rum substantia non dissolvatur, attamen sulphurea pars metallica a crystal-  
 “ lina secerni potest, & sui juris facta in corporis humani liquores vires suas  
 “ exerere.” (And having answered another objection, from the nimis exigua  
 metallica portio in gemmis, which I believe nobody will make, he concludes)  
 “ Non sunt igitur levi de causa proscribendæ gemmæ ex pharmaceuticis  
 “ compositionibus, jam longo usu receptis, & diuturniore ac felici expe-  
 “ rientia comprobatis: cum suæ sint unius cujusque virtutes; de quibus fa-  
 “ teor non satis nobis constat, quoniam plurimæ quæ de iis prædicantur,  
 “ incertæ sunt, aut commentitiæ.” Thus *Geoff.* i. p. 95. argues for the  
 gems.

I put a piece of the smaragdus *offic.* (which, obiter, scarcely can be called a pellucido-smaragdus) in a crucible over the fire, to observe what heat was necessary to kindle it: and I found that long before there was any visible change of the stone, the crucible was so hot as to kindle brimstone, even at its brim. At length the stone began to shine, with a much finer lustre, a thin green flame surrounding, and as it were inclosing it; and in a few seconds crack'd and split into a thousand bits; some flew over the crucible, and there remained only a coarse white powder, as of crystal, in it. The granatus and sardus *offic.* kept half an hour red-hot, in a crucible also; and neither cracked nor split: only, when cold the granate appeared to be less transparent; and the sardus rather whiter, but as hard as ever. Now the basis or crystalline part of all the gems, or some sort of bastard diamond, or what you please, being absolutely unalterable by the vis vitæ; and their tinctures or colours, from what ever original they proceed, requiring a degree of heat far greater than any animal can bear, yea absolutely destructive to animal bodies, to separate them from the crystalline substance; it is also evident that the metallic part can be of as little use as the crystalline. What philosopher, chymist or physician can infer, that because a heat greater than that which kindles brimstone separates the metallic from the crystalline part, the same may be done in the

stomach? And because smaragds are thus separable, that all gems are so likewise? But granting it were so, how does it appear that they have any virtues? De virtutibus non satis constat, is what he owns. Yea though de virtutibus constaret, and the metallic substances to which they owe their colours were known, would not these substances do better themselves? May not iron supply the tinctures from iron? Brass from brass, &c.—But moreover, 2. The substances we get in druggists shops for the lapides pretiosi, and which are used in the shop compositions for them, if they be not sometimes the sardus and granatus, have as little in them of the gems whose names they bear, as they have of gold and silver. Hence I may infer, that non levi de causa proscribendæ sunt; imo gravi de causa sunt gemmæ proscriptæ.

But still seeing experience is more to be regarded than any reasoning, save what is founded on it, that you may the better judge of what may be depended upon from thence, read *De Boot*, or even *Schroder*, on the virtues of these gems, and you will soon see that it is ridiculous to pretend to experience for their usefulness. I shall give a sample of their wonderful effects, worn about a person, or as amulets.—(α) The sapphirus procures the favour of princes, reconciles enemies, sets prisoners free. “*S. Hieronymus* (in Explic. “ cap. 19. Proph. Esaiæ) portatum sapphirum, gratiam apud homines, & “ principes conciliare, inimicos placare, incantamenta prohibere, carcere de- “ tentos liberare, ac iram Dei mitigare affirmat.” Vide *De Boot*, p. 186: (β) Granata strengthens the heart, cures sadness and melancholy: (γ) Sardus quickens the judgment; defends from poisons, ill dreams, fear, and fascination: (δ) Smaragdus prevents abortion, forwards delivery like the æcites, gives courage, eloquence, riches, knowledge of secrets, future events, and keeps from ill spirits: (ε) Hyacinthus preserves from the pestilence; procures sleep, riches, honour, prudence, and defends from thunder: (ζ) Topasius increases wisdom, courage and constancy of mind; keeps from witchcraft; and frightens away the devils. (η) Amethystus prevents intoxication and ill thoughts; procures a good genius and makes industrious. (θ) Rubinus cheers the spirits, keeps the body sound, and foretells misfortunes. There is a notable story related by *Wolfgangus Gabelchoverus* of himself, in his notes on *And. Baccius de Gemmis & Lapidibus*, and transcribed by *Tollius* in *De Boot*, p. 146. Thus—“ Notatu dignum est rubinum verum orientale, co- “ loris crebra mutatione & obscuritate, homini ipsum gestanti, certum ali- “ quod infortunium, & calamitatem non diu abfuturum denunciare, & pro “ majore vel minore infortunio, ad majorem vel minorem nigredinem, & “ opacitatem declinare. Id quod tum a viris clarissimis frequenter audi- “ tum quoque, prohi dolor! ipse expertus fui. Cum enim 5 Decembris anni “ 1600. cum dilectissima conjuge, *Catharina Adelmannia*, p. m. Stutgardiæ “ Calviam proficiscerer observavi in itinere manifestissime, rubinum pulcher- “ rimum, quem annulo aureo inclusum, ab eadem dono acceptum, in manu “ gerabam, semel atque iterum splendidissimum colorem fere prorsus amisisse, “ & pro splendore obscuritatem, & luce tenebras acquisivisse: quæ nigredo “ & obscuritas, non solum per unum vel alterum diem, sed aliquot perdu- “ ravit, adeo ut vehementer perterritus, anulum ex digito removerim, & in “ cistam recondiderim. Unde non raro conjugem admonui, instare vel mihi “ vel illi insigne periculum, quod ex rubini mutatione & varietate college- “ ram.



“ram. Neque sane animus meus me fefellit, ut quæ intra paucos dies  
 “lethali morbo correpta fuit, qui ipsam ad mortem usque comitatus est.  
 “Post mortem vero pristinus splendor sua sponte denuo rediit.” Thus he,  
 whose predictions perhaps contributed to the poor woman’s death not a little.

*De Boot* does not pretend to account for the virtues of gems from any natural qualities in themselves, but from spirits dwelling in them. “In Dei  
 “enim potestate est vel bonos vel malos spiritus certis corporibus addicere,  
 “vel alligare, ut aut nocere aut prodesse homini possint. . . . Fortassis enim  
 “gemmarum propter splendorem pulchritudinem & dignitatem substantia  
 “apta est, ut bonorum spirituum statio, aut receptaculum sit: sicut malorum,  
 “medicorum, theologorumque sententia, loca fœtida, horrida, solitaria,  
 “& humores melancholici, in quibus dum sedem spiritus mali fixerunt,  
 “efficiunt ut obsessus peregrino sibi ignoto idiomate utatur, futura prædicat,  
 “multaque alia supra naturam faciat. Ut per hos humores mali, cur  
 “per gemmas boni agere, & incredibiles facultates exercere, Deo sic statuente,  
 “& volente, non possunt? Dum itaque supernaturale quid a gemmis  
 “efficitur, id non gemmarum viribus, sed spiritibus ascribendum est.”

*De Boot*, p. 125. Vide a. p. 122—27. where he treats concerning the adamant’s proprieties, qualities & facultates, which sufficiently exposes the foundation on which the virtues of the gems are built.

There are many curious things relative to the history, kinds, cutting, value, counterfeiting, &c. of gems, in *Savary’s* Dictionary, which our jewellers are little acquainted with. *De Boot* also and *De Laet* are reckoned standard authors on this subject. But I have already exceeded my bounds; and shall only add a quotation from *Tavernier*.

“There are but two places in all the East, where coloured stones are  
 “found, viz. in the kingdom of Pegu and Cylon. The first is a mountain,  
 “twelve days journey or thereabouts from Sireri, towards the N. E. It is  
 “called Capelan. In this mine are found great quantities of rubies, and  
 “espinels or mothers of rubies, yellow topazes, blue and white sapphires,  
 “jacinths, amethysts, and other stones of different colours. Among these  
 “stones which are hard, other stones are found of different colours, but being  
 “soft they are of no esteem. All these sorts of stones, the natives call rubies.  
 “The King of Pegu keeps all the choice stones for himself and subjects;  
 “and suffers few of them, more than three carats weight and clean, to  
 “be exported. There are some rubies, but most of them are balleis rubies,  
 “and abundance of bastard rubies, sapphires and topazes found in the mountains  
 “that run along from Pegu to the kingdom of Gamboya. The other  
 “place where rubies are found, is a river of Cylon, which descends from  
 “certain high mountains, in the middle of the island. It swells very high  
 “when the rains fall, and when it becomes low again, the people make it  
 “their business to search among the sands, for rubies, sapphires and topazes.  
 “All the stones found in this river, are generally fairer and clearer than those  
 “in Pegu. In Hungary is a mine of opals, a stone no-where found in the  
 “whole world but there. Turquoises are of two sorts, viz. the old rock,  
 “and the new; and are only found in Persia. The old rock lies near a great  
 “town called Micabourg, and is reserved only for the King’s use, to adorn  
 “hilt of swords, knives and daggers, instead of enameling. The new rock

“ is of a pale blue, inclining to white, and little esteemed. Emeralds, though  
 “ said to be oriental, are not found in any part of the eastern continent, but  
 “ are brought from Peru to the Philippine islands, and so transported into  
 “ Europe.” Thus *Tavernier* in *Harris Coll.* ii. 374. See also *Ribeiro* *ibid.*  
 p. 461. and p. 467. where, from the Jesuits, it is said that agats and sap-  
 phires, and an emerald-mine are found in Siam.

The carat by which gems are sold is a weight of four grains: but the  
 grains are less than the goldsmiths or apothecaries grains, so that a carat is  
 equal to gr. iij. and near  $\frac{1}{2}$  part of a grain more.

## P U M E X.

## S E C T. I.

*Pumex offic.* *Pumex.* *De Boot*, p. 400. *Worm. Mus.* 47. *De Laet.* 130.  
*Charlet. Foss.* 21. *Schroder.* 362. *Matth.* 974. “ *Scyrus lapis.* *Aldrov. Mus.*  
*Metal.* 696. *Pumex offic.*” *Dale* 39. An lapis bibulus *Virgilii*? *Georg.* 2.  
 v. 348. The pumice-stone.—This is light, porous, spongy, (hard but) friable,  
 of different colours, but commonly grey or white, some being black; found  
 in many places in the earth, as well as on the Mediterranean sea.

“ *Pumex*, *Virgilio* lapis bibulus, item spongia, ut & *Vitruvio*, quod spongiæ  
 “ instar fistulosus sit, dicitur, lapis est erosus, spongiosusque, exiguis cavernu-  
 “ lis, seu foraminibus plenus. Græce *Κισσηρίς*, quod veluti a vermiculis,  
 “ qui *κίς* dicuntur, sit exesus. *Αλκυονειον* a *Theophrasto* vocari putant, quod e  
 “ marina spuma coactus sit. . . Differunt inter se pumices colore; sunt enim  
 “ aut nigri, ut siculi; aut cinerei, aut candidi; alii molles sunt manibusque  
 “ teri in arenam possunt; alii duri. Omnes rari sunt & leves, ac ob fistulas,  
 “ aeremque iis contentum, aquæ innatant, quamvis magni. Inveniuntur in  
 “ *Melo*, *Scyro*, *Aeoliis* insulis, in *Nisyro* insula, *Sicilia*, in *Campania* ad  
 “ montem *Modernum* & *Vesuvium*, in *Aenaria*, & ad confluentiam *Germa-*  
 “ *niæ*; item in littoribus maris undis detrusis, & in tractu maris *Tyrrheni*.  
 “ *Veteres* e spuma maris coalescere in insula *Cyclade*, & *Nisyro* testantur.  
 “ Sæpe ab exustione, aut coctione lapidum sit, ut circa *Ætnam*, & in colli-  
 “ bus *Mysiæ*. Probantur candore, minimoque pondere, & ut quam maxime  
 “ spongiosi, aridique sint, ac teri faciles, nec arenosi in fricando, quique ex  
 “ capillis canescentibus coagmentati videntur, ut alumen scissile. Hi ad cor-  
 “ pora scæminarum læviganda soli utiles sunt. Usus etiam pumicum ad lævi-  
 “ gandas telas pro pictoribus, item ad corpora scæminarum vel virorum fri-  
 “ canda in balneis.” *De Boot.* 400.

“ *Pumicis* (*κισσηρέως*) probatio, ut sit quam maxime levis, multicavus seu  
 “ spongiosus, scissilis ac minime lapidosus, insuperque teri facilis, atque can-  
 “ didus.” *Dioscorid.* l. 5. c. 125. p. 375. Vide & *Plinii* l. 36. c. 21. p. 875.  
 “ *Pumicem*, ambustum esse lapidem, in montium concavitatibus, omnes fere  
 “ fatentur naturæ operum exploratores. Ob id enim sæpius eructat mons  
 “ *Ætna* in *Sicilia*, & in *Campania* *Vesuvius*.” *Toll.* in *De Boot.* p. 401.

It is generally thought they are formed in volcanoes, or where there have  
 been subterranean fires: for though they are found far distant from any volcano



sometimes, and it is asserted that some places of the Archipelago have been seen sometimes almost entirely covered with them; yet this is only after some earthquakes have happened near these places: and who knows but the pumices found in Germany about the confluence of the Moselle and Rhine, may be from the same origin. Vide *Savary Diët.* ii. 1091. They come from Germany says *Dale*. They are imported at Marseilles from the Archipelago, Morea, and Barbary. *Sav. Diët.* iii. 543. *Wormius* had some large black pumices, thrown out of Hecla. Are all at first black, and whitened in the sea, by the air, rain, &c?

“As there are pumices of several sizes, of different figures and colours, so the artificers that use them, seem to have divided them amongst them, as it were. The parchment-makers, and stone-cutters, take the biggest and lightest; the curriers employ the heaviest, and flattest; the pewterers the smallest; and for medicine, in which they are of some use, though much less than according to *Pliny* they were formerly, the finest and whitest are chosen.” Thus *Savary Diët.* ii. 1091.

## S E C T: II.

Pumice-stones are of little, if of any real use in medicine. However they are commended by some, for moist ulcers, for dentifrices and eye-powders, and to pluck out hairs. In all which cases, they appear to be rather hurtful.

“Refrigerat, siccatur, extenuat, ulcera leviter purgat, cicatrices explet & emendat. Farina adhibetur sæpe medicamentis oculorum & verendorum. Immiscetur item dentifriciis & sternutatoriis. *Præp. Pumex ustus.*” *Schroder.* p. 362. It was prepared by a triple ignition and double extinction in wine, according to *Dioscorides* also; who (l. c.) says, “Vis ejus astringere & gingivas abstergere: purgat cum calfactione, quæ pupillis caliginem offendunt: explet ulcera, & ad cicatricem perducit, insuperque excrecentia cohibet. Fit & e farina ejus dentifricium. Corpori denique crustam obducit. *Και εσχάρωτινν σωματος: εστινque pilis abolendis aptus.*”

What effect such a caput mortuum can have on ulcers, if not to irritate them by its points, and, if sufficiently prepared, to form a crust or scab with the matter running from them, I do not see. In dentifrices, it may hurt the gums, lay bare the teeth, and so bring on the tooth-ach. What effect it will have on the eyes I think obvious. It is called optimus barbitonfor by *Albinus* in M. S. I think it the worst of barbers. Mr. *Lemery's Diët.* p. 448. says it is alkaline; he means, I suppose, absorbent. Is it so? I believe not. “It will not ferment with any acid, nor suffer any change in the fire.” *Hill, M. M.* p. 265.

“Theophrastus auctor est potatōres in certamine bibendi, præsumere fari-  
“nam ejus; sed nisi immenso potu impleantur periclitari; tantamque refri-  
“gerandi naturam esse, ut multa fervere desinant pumice addito.” *De Boot.* p. 401. “Pumex est lapis sui generis. Ustus fit substantiæ tenuioris, sed  
“acquirat aliquid acrimoniam, quam lotionem iterum amittit, & fit sarcoticum.  
“*Galen* 9 simpl. alioquin ut lapis abstergit quemadmodum testa figulina, &  
“locum habet in dentifriciis.” *Hoffman.* p. 542. Does it lose or gain any thing by calcination?

S I L E X.

## S I L E X .

## S E C T. I.

Silex *offic.* Silex. *De Boot.* p. 515. *De Lact.* 164. *Worm. Mus.* 39. *Merr. Pin.* 213. *Charlet. Foss.* 16. “*Aldrov. Mus. Metal.* 724. *Kentm.* 44. Silex “*offic.*” *Dale* 43. The flint-stone, — which is harder than marble, and more pellucid, of several colours, and found every where.

There are white, yellow, green, red, brown, black, and variegated flints, but the colours are always somewhat obscure. There are found also flints of various figures. Vide *Worm.* l. c.

“Silex lapis est valde ponderosus . . . venit autem sub diversissimis nominibus, prout color ejus variat: imo vilissimus alias lapis pro magnitudine colorum pulchritudine & varietate, magno pretio æstimatur. Si lapis hic vel naturali superficie vel fractus, admodum angulosus & scindens est, dicitur a metallicis quarum. Quædam hujus species igne anemio sat facile liquefunt: aliæ autem maximum ignem vix mutatæ, sustinent, adeoque haud viderentur huc (ad vitrificantes) pertinere, nisi addito pauxillo salis, aliove menstruo, imo ipso carbonum alcali, liquefcerent nudo igne expositæ. Quando silices minimi, granulati, coacrevati modo non vero cohærent, vocantur arena vel sabulum, &c.” *Cramer* i. p. 13.

“Variis coloribus, sed obscuris, a natura tinguntur silices: inveniuntur enim nigri ut lapidis Lydii vices supplere possint, rubri, albi, flavi, virides, fusei, mixtisque coloribus. Differentiæ illius plurimæ sunt: aliqui liquabiles sunt qui plerumque foris albi sunt & translucidi. . . . Vitrarii ex illis vitra conficiunt. . . . Aliqui prorsus diaphani, qui a gemmariis sculpuntur, ac pro adamantibus Bohemicis divenduntur; aliqui prorsus opaci, &c.” *De Boot.* 515. “Silices omnes minime polituram exactam admittunt: vidi enim silices in quibus quidem varii colores elegantissime mixti erant, haud secus, quam in jaspide, quique durissimi erant, a peritissimo artifice politos, in quibus tamen desiderabatur, neque ulla arte obtineri potuerat, lævitas illa & nitor qui in achate & jaspide atque adeo marmoribus plerisque politis cernitur. Ita ut hæc specifica sit differentia inter silices & marmora, quod hæc exactam polituram admittant, licet alia magis alia minus & niteant, illi vero minime.” *De Lact.* 164. “The mode of flint snuff-boxes commenced with the 18th century. The diversity of their colours, and the fine polishing they take, give them the preference to agat, and onyx. The painters on glass use flints in their colours, particularly in white.” *Savary Dict.* i. p. 507. “Silex chalybe strictus scintillas fundit lucidissimas, quæ microscopio examinatæ, deprehenduntur scoria ferri, & lapidis liquefacta.” *Cramer* i. p. 13. *An?*

## S E C T. II.

Flint may be a succedaneum to all the precious stones, and yet useless in medicine.



“ Silicum communium usus internus esse potest ad tartaream mucilaginem  
 “ incidendam, calculum resolvendum, ac proinde ad obstructions referendas.  
 “ Extrinsecus frequenti usu in dentifriciis adhibentur. Pyritis vim possidet  
 “ calfaciendi, siccandi, discutiendi, digerendi, adeoque emplastris digerenti-  
 “ bus admiscetur. *Præp.* Sal, oleum p. d. & cremor.” *Schroder.* p. 363.

## L E C T U R E XXXIII.

### OF DEMI-METALS, OR METALLIC MINERALS.

#### A N T I M O N I U M.

##### S E C T. I.

**A**Ntimonium, A. crudum, & Stibium *offic.* Antimonium, *Arabibus* Asinat, *Chaldeis* Stibium, *Germanis* Spiesglas. *B. Val. Curr. trium.* p. 76. *A. quibusdam*, Stimmi, *Worm* 125. Antimonium, *Charl. Foss.* 49. Stibi, *Kent.* 88. Stibium seu antimonium, *Fallop. Foss.* c. 99. p. 332. Stibium, *Aldrov. Mus. Metal.* 186. *Calc. Mus.* 458. *Fab.* 27. Τετραγώνον, *Hippocrat. De intern. affect. Tæf.* p. 557. & 559? Στιμμι, quod nonnulli stibi, aliqui platyophthalmon, alii larbofon appellarunt. *Dioscorid.* l. 5. c. 99. p. 361. Stimmi, *Galen. Simpl. Med.* l. 9. p. 71. a. Spumæ lapis candidæ, nitentisque, non tamen translucentis; stimmi appellant, alii stibium, alii alabastrum, alii larbason. *Plin.* l. 33. c. 6. p. 796. Stibium antimonium, *Græcorum* στιμμι, *recentiorum*, antimonium. *Boerb. Chem.* i. 55. Antimonium *offic.* *Dale* 34. Stibium & antimonium *offic.* *Geoff. M. M.* i. 215. Antimony. — This is an hard heavy metallic mineral or demi-metal, composed, as it were, of long shining slender striæ, or thin and narrow laminæ, rather than needles, of a leaden colour, and sulphureous smell; found in ore; which being melted and run into pyramidal pots, is the crude antimony of the shops.

“ Minera antimonii, colore galenæ plumbi tessulatæ, striis tenuibus, longis  
 “ & sese decussantibus interdum levi rubedine interlucente, semet distinguens,  
 “ ponderosa; resolvitur in regulinam partem, & sulphur vulgare, ex quibus  
 “ ambobus etiam, sub debita encheiresi regenerari facile potest.” *Cramer* i. §. 405. p. 233.

The ore of antimony is found in its proper mines, as well as in those of metals, especially in lead and silver mines; and almost in every country. “ In mineris plumbeis Derbientibus reperitur.” *Merr. Pin.* 209. and the antimony got from it, is equally good, whether it have red spots or particles in it or not, if this redness, which some have attributed to the imaginary sulphur auri, and Mr. *Lemery* to the rarification of the sulphur by the sun or subterranean fire, be not rather owing to somewhat arsenical. But seldom is any antimony to be met with so marked. Vide *Cramer* i. §. 315. p. 185. and when it is, it ought rather to be rejected than chosen. Vide *infra*.

The

The ore broken into small pieces, nucis avellanæ magnitudine, put into a crucible with some small holes in its bottom, covered, set into the mouth of a smaller pot, sunk in ashes, well luted, and fire put round the crucible till it be red-hot, melts, and in  $\frac{1}{2}$  horæ runs through the holes in the crucible into the pot below, which being of the figure of an inverted cone, gives the antimony the form in which we get it.

“Antimonii minera, quæ semperprehenditur sulphurata, admodum fluxilis est, & igne paulo fortiore diutius continuato, multum ejus, specie fumi, deperditur. . . Hinc talis apparatus requiritur pro ejus deliquatione, ut aeris actio quodammodo sit præclusa, & antimonium liquefactum statim frigidiorum occupet locum: quod obtinetur per cineres, quibus inferius vas est immersum, quique difficilior quam alia corpora, ignem ferentia, percandescunt.” *Cramer* ii. *Process.* 60. p. 219.

“Maxime laudatur Ungaricum & Transylvanicum, utpote sulphure puriore dotatum, aurique minera imbutum. Striis id splendidioribus & longioribus, obscuraque rubedine, (quæ bonitatem ejus arguit, ob sulphuris abundantiam) reperitur. Hujus nimirum meminit Paracelsus sub titulo rubentis Leonis, & Basilii Monachus, sub orientalis nomine. Et hoc maxime ad medicamentorum elaborationes eligendum est.” *Schroder.* p. 425. “There is also in the Chrennitz gold-mine a certain substance adhering to the gold-ore, and consisting of small pointed parts like needles, of a purple colour and shining, the mother of it being yellow like brimstone; they give it the name of antimony of gold.” *Dr. Brown* in *Harris Coll.* ii. 515. For the different sorts of ores of antimony vide *Cramer* i. 233. *Geoff.* i. 216.

That antimony or rather its ore is the stibium & stibium of the ancients has never been called in question, so far as I know. There is however one objection against it. *Dioscorides* directing how to burn his stibium, says, “Καίεται δὲ ἐπὶ ἀνθρακῶν ἐπιτεθεὶν καὶ ἐμφυσηθὲν ἄχρι πυρώσεως, εἰν γὰρ ἐπιπλεον καὶ μοιβόσται.” This in the translation *Matthioli* follows, which is rendered, “Uritur etiam carbonibus succensis efflatum, quoad igni deflagret: si enim paulo magis concremetur plumbum fit.” p. 926. *Saracen* indeed translates it better. “Uritur vero prunis impositum sufflatumque, quoad ignescat: si enim amplius uratur, plumbi instar liquefcit.” p. 361. Only if μοιβόσται signifies, it melts like lead, *Pliny* has not understood it, for he says expressly, “Ante omnia urendi modus necessarius est, ne plumbum fiat.” l. c. Perhaps the regulus is meant by this plumbum? But this question is of little consequence, since antimony is not used now as was the stibium of old: for the ancients used stibium only as a cooling, drying, and astringent medicine, externally, especially in collyriums, and, I don’t know how, in dilating and painting the eyes; and attributed to it the virtues of plumbumustum.

“Plerique, says *Pliny*, platyophthalmion id appellavere, quoniam in calliblepharis mulierum dilatet oculos.” l. c. Which seems to have been a practice among the Jews. Thus *Jezebel* is said to have put her eyes in paint; “Ἐστιμμίσατο τὰς ὀφθαλμοὺς αὐτῆς.” 2 *Kings* ix. 30. In the Hebrew it is, “She put her eyes in paint, that is in stibium, which made her eyes look black, and was accounted beautiful: and also dilated the eyebrows, and made the eyes appear big. . . This was not intended to tempt *Jehu* with her beauty, but to keep up her dignity and state to the very last; for she was

“very



“very proud.” *Patrick’s Comment.* ii. 477. Vide *Geoff.* i. 219. And we read, “Ἐὰν ἐγχαρίσῃ στίβι τὰς ὀφθαλμούς σου.” *Jerem.* iv. 30. “Καὶ ἐστιβίζῃ τοὺς ὀφθαλμούς σου.” *Ezek.* xxiii. 40. Was it on account of the colour, or of the astringency of stibium?

There is however a passage in *Dioscorides*, which seems to point out the cathartic virtue of his stimmi, viz. l. 4. c. 155: where, treating of elaterium, he says, “If you would have it purge downward, add a double quantity of salt, and a little στικμῶς (others read σικηπεῶς) to colour it, and give it in pills.” But since the colour only seems to have been here wanted (and therefore sinapi was not so proper) and none of the ancients make stibium purgative, this is but a lame proof that *Dioscorides* was acquainted with its cathartic quality; especially since crude antimony is not commonly purgative, and if burnt it would rather have rendered the elaterium more emetic than have prevented its vomiting.

The discovery of those qualities of antimony, which procured it the character of a most efficacious and valuable remedy, seems not to have been older than the 15th century, or beginning of the 16th rather, in which the *Currus triumphalis antimonii* was written in High Dutch. It was afterwards published in Latin with this title, *Theodori Kerckringii, D. M. Commentarius in Currum triumphalem antimonii, Basilii Valentini, a se Latinitate donatum. Amstelodami 1671. in 12mo.* — I know it is controverted in what age this author lived. The learned Messrs. *Furetiere, Pomet, Geoff. Savar. Hill, &c.* placing him in or about the 12th century; Mr. *Le Clerk*, towards the end of the 15th; and the great *Boerhaave*, making him an age older than *Paracelsus*: but this book itself seems, in some measure, to clear up this point; for in it is mentioned, not only pulvis pyrius, but also the morbus Gallicus, which was not known in Europe before 1494. “Fit ex antimonio mercurius vivus: fit sulphur quod ardet instar sulphuris vulgaris, adeo ut pulvis pyrius ex eo possit præparari; fit sal verus & alia multa.” *Curr. Triumph.* p. 134. “Per artem & methodum, potest ex eo fieri oleum, quod novum & incognitum illum morbum, omnino consumere potest, quem per hasce expeditiones bellicas Galli in regiones nostras invexerunt.” p. 52. The morbus Gallicus is also mentioned, p. 119, 154, 254, 339 & 193. “Si enim hujus medicinæ fumantur tria quatuorve grana, pellit lepram, & morbum quem vocant Gallicum, purificat sanguinem, &c.” p. 154.

“Basilius Valentinus, Monachus ubique dictus ordinis Benedictinorum Erfurti; licet pro vero narretur, nunquam tale monasterium, ibidem extitisse, nomenque utrumque fictum ex Græco & Latino videatur. Utique artifex in omni vulgari chemia expertissimus; ut solus currus triumphalis antimonii docet; in quo fere uno cuncta artificia chemica, pro novis falso vendita hodie, ad amussim continentur & sincere describuntur. . . . Cæterum theologum se & medicum satis prodit, aulisque per artes inclaruisset videtur, habitus sæculo prior Paracelsi. Auctor fuit trium principiorum chemicorum; unde Paracelsus hausit plurima.” *Boerb. Chem.* i. p. 18. *Paracelsus* died in 1541. . . . But neither the authority of Basil Valentine, Paracelsus and other chemists; nor the real effects of some of the preparations of antimony, were sufficient to overcome the prejudices of the schools against it. Thus for instance, though Matthiolus, after relating four notable cures performed

formed by means of the stibium hyacinthinum (three of which are in the *Venice* edition in 1558) and expatiating much on its virtues, adds, —  
 “ Quamobrem optime ii dicunt & intelligunt, qui in deploratis fere morbis  
 “ diuturnis, ipsisque pituitosis & melancholicis curandis, stibium Dei manum  
 “ appellant.” l. 5. c. 29. edit. 1565. Yet in *July* 1566, by a decree of the  
 Faculty of Physicians at Paris, backed by an arret of the parliament, antimony  
 was condemned as a poison, and all use of it, either crude or however pre-  
 pared, prohibited. Vide *G. Hoffman*, p. 550. However these interdictions were  
 not every where regarded: antimonials were used, and with success, that even  
 at Paris in 1650, former decrees against them were repealed, and physicians  
 permitted openly to prescribe them. Yea before the end of that century re-  
 course was had to antimony in the most obstinate and deplorable diseases.  
 Vide *infra* N. B.

“ Never did any remedy meet with so inconstant a fortune, with regard  
 “ to physic, as antimony has done. Scarcely, towards the 12th century,  
 “ came it out of the darkness of the mines, by the assistance of Valentine the  
 “ monk, when the ill success of the experiments made by that artist on the  
 “ unhappy monks his brethren (if the story be not fabulous) made it return  
 “ thither for a long time. Three hundred years after drew it out a second  
 “ time, and antimony began to establish itself; when in 1566, it was thunder-  
 “ struck by an arret of parliament. In 1637, by public authority, it was  
 “ however received into the number of purgatives. In 1650, a new arret,  
 “ rescinded that of 1566, and again brought antimony into reputation. In  
 “ fine, from that time, intire liberty has been granted to physicians, excluding  
 “ all others, but by their advice, freely to use it; and what may be said to  
 “ have compleated the triumph of antimony, it has now no enemy, and is  
 “ become, as it were, the remedy of all those diseases which appear incurable.”  
*Savary Dict.* i. 109.

Antimonium is but a modern name, but by whom it was first given, and  
 why stibium got it, I cannot find. “ Arabes vocant Aitruad & Achman vel  
 “ Achiman; unde chymistæ & seplasiarii deduxere Achmadium, & ab hac  
 “ voce postea antimonium.” *Fallop.* l. c. “ Stibium, recentioribus medicis,  
 “ chymistis, ac seplasiariis, qui Mauritanorum doctrinam sectantur, antimo-  
 “ nium dicitur, quod hoc nomine Serapio, & Avicenna stibium appellaverint.”  
*Matth.* l. c.

“ The origin of the name antimony is not known, and that given it too  
 “ like a fable to be credited; there being but little probability that this mine-  
 “ ral was so called, because the monk Valentine, that famous *heros du grand*  
 “ *œuvre*, poisoned all his brethren by purging them too much with it.”  
*Savary Dict.* i. 109.

“ Vel in propria minera reperitur, vel & quidem sæpius cum cæteris me-  
 “ tallis admixtum: unde *αντιμονον* seu *αντιμονιον*, quasi nunquam solum, seu  
 “ absque alterius metalli consortio repireretur.” *Geoff.* i. 216. Learned con-  
 jectures! May it not as well be derived from *αντι* & *μινιον*, or *αμμιον*, as  
 having the grain almost like but not of the colour of cinnabar, or having  
 some bad effect on it?

N. B. “ Mr. Furetiere observes that the use of antimony, unless in the com-  
 “ position of paints, was wholly unknown till about the 12th age; but then a

“ certain-



“ certain monk, Basilius Valentine by name, published a book, intitled, *Cur-  
 “ rus triumphalis antimonii*, wherein he undertakes to affirm, that it is a re-  
 “ medy against all sorts of diseases. Three hundred years after this Paracel-  
 “ sus brought it into vogue : but then in the year 1566 the use of it was  
 “ condemned by act of parliament ; and one Besnier a physician in 1609 trans-  
 “ gressing it, was excluded the faculty. In the year 1657 antimony was  
 “ again received by public authority, amongst the number of purging reme-  
 “ dies ; and in 1650 the act made in 1566 was repealed. Anno 1637 the  
 “ faculty caused it to be inserted among the purging medicines in their *Anti-  
 “ dotarium* printed that year, therein following the opinion of Matthiolus :  
 “ And, in short, on the 29th of March 1668, it had the sanction of public  
 “ authority, by which graduates had a liberty of making use of it, but with  
 “ a prohibition to all others, unless by their advice.” Thus *Hill's Pomet* ii.  
 129 : where see his *ratio nominis*. Compare his translation of Lemery on this  
 article, with the original French, in *Lem. Diction.* p. 33, and you have a sample  
 of the translator's accuracy.

Many have written on antimony, besides Valentin and Paracelsus ; as Philo-  
 logus in 1538, Stengelius in 1566, Grevinus in 1571, Alexander a Suchten  
 1575, Codronchius in 1519, Penotus in 1594, Sala in 1617, Poppius and  
 Kernerus in 1618, &c. and of late Nicolaus Lemery in his *Dict. Chym.* but  
 especially in his *Traité de Antimoine*, à Paris 1707. in 12mo : and in the *Phil.*  
*Transf.* vol. 48, p. 832—869. we have medical and chymical observations on  
 antimony, read Dec. 5, 12, 19, 1754. But the compleatest history of anti-  
 mony, and of what authors, of any note, have said for or against its use ; of  
 its virtues, preparations, &c. you have in *Jo. Christ. Rieger Introductio ad  
 notitiam rerum natur. & arte factarum : Hagæ Comitum* 1743. 4to. vol. i.  
 p. 639 ad 697.

## S E C T. II.

Crude antimony is said to purify the blood by perspiration, and is com-  
 mended internally in the epilepsy, pox, scurvy, diseases of the skin, &c. and ex-  
 ternally for tumors, itch, ulcers, as discutient and astringent. But unless it  
 meets with such acids in the stomach as can render it emetic or cathartic, all  
 its other effects may be doubted of. For all the virtues of this mineral, how-  
 ever prepared, seem to depend on the sulphur it contains, and the irritating  
 stimulus, which is more observable in many of its preparations, than in the  
 crude substance.

“ In antimonio, inquit Quercetan (*Tetrad.* c. 3. *St.* 600.) proprietates va-  
 “ riæ ac præstantes, ut præparantes, expurgantes, vomitiones concitantes, &  
 “ id genus aliæ, ut nunquam satis laudari queat. Crudo adhibuerunt veteres  
 “ vim adstringendi, exsiccandi, meatus corporis obstruendi, excrescentias car-  
 “ nis absumendi, cicatrices obducendi, oculorum ulcera & sordes mundifi-  
 “ candi, unde & ad collyria imprimis commendatur. Sunt & qui ad epilep-  
 “ siam arcendam exhibent, etiam in ipso paroxysmo, unde pulvis niger  
 “ Waldec. *Præparationes* quibus subjicitur sunt 1. Calcinatio sicca, unde  
 “ vitra, croci, diaphoretica, reguli ; humida, unde præcipit. varia. 2. Subli-  
 “ matio, unde flores, cinnabaris. 3. Destillatio, unde aceta, olea, spiritus.  
 4. Liquatio,

“ 4. Liquatio, unde balsamus ex scoris. 5. Extractio, unde sulphura, tincturæ. 6. Infusio. 7. Salificatio. 8. Mercurificatio.” *Schroder. p. 425—58.*

Since antimony, long dreaded as a poison, is now every where esteemed a most valuable remedy, and virtues are attributed to it, which cannot be easily believed, it may be of use to enquire as particularly into its constituent principles, real effects and manner of operation, as by the experiments hitherto made (especially by *Lemery*) and their genuine consequences, is in our power. In order to which I observe,

1. That antimony consists of a metallic or reguline substance, and of common brimstone; so that of antimony p. iij. there are reguli p. ij. and sulphuris p. i. though probably the proportions may vary. “ Ex sesquilibra antimonii crudi, sine addito, vel cum pulvere carbonum ustulata, ultra libram reguli, post reductionem obtinetur, nisi errorem quendam commiseris, nimio, aut nimis diuturno igne, vel impurius adhibueris antimonium.” Vide *Cramer* ii. p. 225. “ Antimonium Gallicum constat ex partibus fere æqualibus sulphuris inflammabilis, communi similis & substantiæ regulinæ.” *Geoff. i. 217.* The sulphur can be separated from the regulus many ways, as by aq. regia, (vide *Lem. Chym. p. 322. Boerb. Chem. ii. p. 505*), by alcalies, &c. (Vide infra *sulphur auratum*.)—This makes it flash in the fire with nitre, and sublimed with corrosive sublimate, yield a cinnabar: and that it is not different from common brimstone, the artificial production of crude antimony, from its regulus fused with brimstone sufficiently confirms. Vide *Cramer* i. p. 193.

Now as in cinnabar and æthiops mineral, all the mercury is so fixed as not to act as it would otherwise do; so the sulphur may have the same effect on the reguline part of antimony. But since in antimony there is a much greater proportion of sulphur, than in cinnabar; and antimony evidently smells of brimstone, and to me tastes like it also, it is not improbable, that though all the regulus should be locked up by the sulphur, yet that some of the sulphur may be at liberty to exert itself, whether outwardly or inwardly applied. And to this sulphur are to be attributed, perhaps, all the real effects of crude antimony unopened, or not acted on by acids, which though only of the vegetable kind, are said to render it emetic: and if so, evince that the union of the sulphur and regulus in it, is not so compleat, as is that of sulphur, and mercury in cinnabar. But,

2. That the acid got from antimony by distillation is not proportional to, though of the same nature with, the spirit or acid of the sulphur it contains, which is nothing but common brimstone, as is evident from the production of crude antimony, out of brimstone and the regulus. “ For mineræ antimonii 3xxiv. distilled by a retort, yielded of a subacid phlegm 3vß. and there remained in the retort 3xxij. 3j. so lost 3ixß. Crude antimony, treated the same way, gave an insipid phlegm, and only redned a little the blue paper.” Vide *Lem. Traité de Antimoine, à Paris 1707. in 8vo.* So that more acid is got from the ore, than from the purified antimony, yet still much less than the sulphur in antimony contains; because the acid and phlogiston of sulphur cannot be separated by such a process. Vide *Cramer. ii. p. 259. No. 3.*



“ Ob uberiozem sulphuris copiam, qua turget antimonium, ex eo liquor acidus, a spiritu sulphuris vulgari non discrepans, extrahi potest. Unde liquet antimonium constare ex acido sulphureo, seu vitriolico, ex substantia bituminosa, qualis e sulphure vulgari extrahitur, & ex vitrescibili terra metallica.” *Geoff. i. 218.* But if the acid of sulphur cannot be separated by distillation, whence came the subacid phlegm mentioned by Mr. Lemery? Probably from the acidum vagum, adhering to the reguline part, or not incorporated with the phlogiston. Why does it not render the antimony emetic? Is it from the smallness of the quantity, or the nature of the acid? From the last.

“ Whatever B. Valentine, Charras, and others talked of the vinegar of antimony, there is no acid in it but the acid of sulphur; nor any other salt, notwithstanding the conceit of Maest, Duncan Borner, &c.” *Huxham l. c. p. 834.* N. B. *Duncani Bornetti, Scoti*, castro-chymicus, sive de præparatione & compositione med. chym. artificiosa tractatus. *Francofurti 1616.* in 4to. *Lind. ren. p. 252.*

3. That though antimony is easily corroded by some mineral acids, and opened, (or so altered as to become emetic) by such as are vegetable; yet it is difficultly dissolved. Thus according to Mr. Lemery ( $\alpha$ ) aqua regia penetrates it with ebullition and heat, more than any other acid spirit; but it turns it only to a white powder, which precipitates intirely, nothing remaining suspended in the menstruum; yet 16 parts of an aq. regia (made of one part spirit of salt, and four parts sp. of nitre) will intirely dissolve one part of the regulus of antimony, according to Mr. Geoff. Vide *Macq. Ch. Prat. i. p. 340.* ( $\beta$ ) Spiritus nitri and aqua fortis penetrate it with ebullition and heat also, but reduce it to a grey powder only; so that it is less attenuated than with aqua regia: for  $\frac{1}{2}$  of sp. salis being added, it penetrated it with ebullition and heat, and turned the grey to a white powder; for the more antimony is penetrated by acids, the whiter it becomes. ( $\gamma$ ) Spiritus salis penetrated it with a small ebullition, and reduced it, almost all, to a white powder, but suspended nothing: aqua regia turned it all white, penetrating the black matter at the bottom, with ebullition and heat. ( $\delta$ ) Spiritus vitrioli, sulphuris, aluminis, though digested eight days with crude antimony separately, discovered no ebullition, no change of colour or taste; neither did they internally taken cause any nausea or vomiting; neither did they, on the affusion of much water, precipitate any thing; so that nothing was dissolved by them. Yet ( $\epsilon$ ) verjuice, vinegar, and other vegetable acids, fermented or unfermented, yea wines (by digestion) draw from crude antimony an emetic quality, more or less according to the nature, rather than quantity of the acid they contain, but no tincture: for wine does as well as vinegar; and sp. acidus veneris, (or Alcahist Zwelferi) has no effect. ( $\zeta$ ) Neither water, vinous spirits, nor volatile alcalies extract any thing from it; and fixed alcalies, as oleum tartari p. d. &c. dissolve only part of its sulphur. Antimony cannot be entirely dissolved till it be reduced to a butyrum by a corrosive mercury. Vide *Lem. Ant. p. 8. &c.*

4. Crude antimony is neither virulent, nor of itself emetic, though taken to 3j. venia boni *Valentini*, who says, “ Antimonium merum venenum est, nec de genere minorum venenorum, sed quo homines & bestias possis peri-

“ mere.” *Curr. Ant.* p. 113. — “ Fateor verum antimonium esse venenum ;  
 “ & ante præparationem nihil in se, aut apud se habere quam venenum ;  
 “ idque verum esse affirmo.” *Ibid.* p. 116. But the contrary of this is now  
 sufficiently known. Authors however differ as to its emetic quality. “ Anti-  
 “ monium nativum vim non habet emeticam.” *Boerb. Chem.* ii. 515. “ In  
 “ stibio nihil emetici est, licet ad plures drachmas ingeretur simul, absque  
 “ ulla præparatione.” *Ibid.* p. 516. “ I made several robust persons, who  
 “ wanted to vomit, take antimonii crudi pulv. ʒß. for a dose: most of them  
 “ vomited without much straining; the rest neither purged nor vomited ;  
 “ which I attributed to the want of acids in their stomach, and therefore  
 “ made them take it again, drinking after it some spoonfulls of an acid  
 “ juice, as limonade or the like, and then it operated both ways.” *Lem. Ant.*  
 p. 5. I have known it given many times in substance, but never observed  
 any effect from it, either good or bad ; even when the patients diet seemed to  
 promise plenty of acids in the stomach. Will it render wine emetic ? — But  
 antimony contains arsenic, and therefore is virulent. That the regulus of  
 antimony and arsenic agree in many things cannot be denied ; for they burn  
 alike, emit the same sort of fumes, have the same effect on metals, and are  
 separated from them the same way. “ Patet hinc convenientia reguli antimo-  
 “ nii cum arsenico: videtur enim totum in eo consistere discrimen, quod ar-  
 “ senicum in antimonio per vitrescentem terram sit fixatum. Unde fit, quod  
 “ si metallis est admixtum antimonium, sola ustulatione, vix inde dissipari  
 “ queat; imo vero liberiori igni cum iis expositum, dum avolat, ipsas me-  
 “ tallicas partes simul destruat, atque volatiles reddat.” Vide *Cramer* i. p. 35—  
 36.—If therefore arsenic is in it, its nature is altered, or so fixed, as not to  
 act on animals like arsenic. For not only crude antimony, but even the eme-  
 tic hepar to ʒj. or ij. is given frequently to horses with all safety ; which is  
 thought not only to purify them by perspiration, make them cast their hair,  
 and grow fat and fine ; but evidently, soon and easily, purges them, or thins  
 their dung, without any signs of sickness, as a famous farrier informs me.  
*Lemery* says, it purges horses only by perspiration. (*Chym.* 320.) And *Wepfer*,  
 that a horse-doctor killed two horses by giving the hepar instead of crude an-  
 timony. (*Cicut. Aquat.* p. 272.) But he says also, “ Antimonium crudum in  
 “ pollinem redactum, vehementissimos vomitus concitat. . . Nam non minus  
 “ quam crocus metallorum, hepar, aut vitrum, aut flores antimonii ventricu-  
 “ lum ad inversum motum ineundum stimulat.” *Cic. Aq.* p. 271. which are  
 certainly mistakes, (Vide *Phil. Transf.* No. 39. p. 774.) or neither crude anti-  
 mony, hepar, nor vitrum is corrosive. Neither does it appear that there is  
 arsenic in the common ore of antimony. For in the *Hist. Acad. Royal.* anno  
 1744. p. 50. *Paris* ed. in 4to. after taking notice that “ In Anvergne anti-  
 “ mony is fused in a very simple manner, it is observed that the operation  
 “ lasts 24 hours, during which time the furnace exhales a thick smoak, of a  
 “ sulphureous smell, which spreads far about it; yet the workmen affirm  
 “ that nobody is troubled or hurt by it.” Vide *Stannum*.

5. That however innocent crude antimony may be in itself, its nature and  
 texture, by acids and fire, may be either so opened, or altered, as to become  
 violently emetic, yea corrosive in the highest degree ; or so destroyed, as to be  
 rendered absolutely inactive, and an useless calx. For (a) Antimony dissolved



in, or rather corroded by aqua regia into a grey powder is a strong emetic; into a white powder becomes more mild; which by more aq. regia, may be rendered intirely unactive. "Stibii pulveris lb̄i. dissolved in aq. regia lb̄iβ. "præcipitates a materies cineritii coloris; and calcinatione hac humida antimonium, prius non emeticum, nec purgans, jam vires acquisivit virulentissimas." Vide *Boerb. Chem.* ii. p. 405. "The common magestery (prepared by corroding antimony p. i. in aq. regię p. iv.) is white, and sometimes vomits gently; sometimes only purges; and sometimes does neither, but provokes sweat. If fresh aqua regia be poured on this calx, it causes a new ebullition and heat: and if it be thus several times penetrated by aq. regia, it has no other effect, internally taken, than bezoar mineral or diaphoretic antimony." Vide *Lem. Chym.* p. 322. Vide *infra* Mercurius Vitę. . . The calx and regulus of antimony, &c. by fire are made emetic; which quality fire can again destroy. It is observed by the great Boyle "that the evacuating force of mercurius vitę is best moderated by keeping it continually stirring in a flattish and well-glazed earthen vessel, placed over a chafing-dish of coals, till it emits no more fumes, but grows of a greyish colour; which is the mercurius vitę purgans." See *Utes. of N. Phil. (Works* vol. i. p. 518.) See also *Riverii Opera*, p. 329. cap. de Hydroke. N. B. Vitrum antim. ceratum. — (β) "Antimonium constat sulphure communi, & gleba metalloide: Sulphur totum volatile igne huic adhibito; metallica pars ignem fusionis sustinet, sed tum sp. dat fumum album suffocantem. "Hinc intelligitur pollinem stibii, ustulatum igne non fundente, sulphur illud externum sensim expellere, metallicam glebam inde depurare, ita tandem in calcem tostam vertere. Quę ex innoxio prius antimonii corpore, virulentissima emetica evasit. Quod unde fiat haud recte hactenus intelligitur. Calx hæc fusa est stibium versum in vitrum, fere lethaliter emeticum." (*Cur?*) *Boerb. Chem.* ii. 507.

"Antimonium (lb̄iβ.) calcined to a grey powder (weighing lb̄i. its specific gravity being increased  $\frac{1}{5}$ ), is more emetic than the regulus. But by repeated calcinations (being reduced to 3ixβ.) it became an inactive earth. "Antimony (lb̄i.=3xvi.) kept in fusion, till it fumes no more (3j. 3j. only remaining) resembles the hepar, causes but a slight vomiting, tho' gr. vi. be taken." *Lem. Antim.* (γ) Antimony calcined with an equal quantity of nitre affords the hepar, a violent emetic; with double nitre it is more mild; and with triple no way cathartic, as is commonly known. By the same means the emetic quality of the hepar, regulus, vitrum, &c. may be destroyed. (δ) "Antimony sublimed *per se* (e. g. 3viii.) yields white flowers (3vii.) which are violently emetic, and impregnate wine and tartar more strongly than the crocus. But the flores reguli antimonii are not emetic; neither are the flowers of the vitrum." Vide *Lem. Chym.* p. 334, &c.

"Antimony p. viii. and nitri p. i. fused together give a very mild kind of regulus medicinalis. Antim. p. v. salis tart. p. i. fluxed, give the regulus medicinalis. But if alcali fixi p. ii. or p. iii. and antimon. p. i. be melted together, a very drastic kind of hepar antimonii, and commonly a small quantity of regulus ensue. . . The vitrum calcined by the rays of the sun, becomes an inactive calx, or ant. diaphoret. as also if burnt with an equal quantity of nitre." According to Dr. Huxham, *Phil. Transf.* 48. p. 533

N. B. " By repeated sublimations I reduced reguli antimonii martialis 3xvi. entirely into flores, and had of them 3xj. 5j. called flores argentei & nix antimonii. I never knew them vomit, or have any effect whatsoever. The operation succeeded the same way with antimony calcined for the vitrum, and with the vitrum itself, though not with crude antimony. I could not revivify these flores into a regulus, though I fused them with tartar and nitre. It is here very remarkable, 1. That the regulus should thus be altogether reduced into a substance, not only white like snow, but also crystalline, or disposed in very fine needles. 2. That they should thus by fire, without any addition, lose their emetic quality. 3. That they should not be reducible again to a regulus, as is the diaphoretic. So this is an entire destruction of the regulus. And 4. That, though these flores infused in sp. salis, or aq. regia, after three hours, cause an ebullition with a little heat, and precipitate into a white powder (increased in weight about gr. vi. per 5j.) they should yet continue of the same nature with the flowers themselves." *Lem. Chym.* 483. Yea (ε) even an alkali salt often either diminishes, or destroys, the emetic virtue of antimony. Vide *Lem. on Antim.*

Hence since common sulphur is not emetic; since the regulus cannot be reduced to antimony without common sulphur; and since a great part of this sulphur must be separated before antimony can become remarkably emetic; and also, since on the intire destruction of the regulus, it loses that quality; I think it clearly follows, that the emetic quality of the antimonial preparations belongs to the reguline part only; and that the destruction of this destroys that also; though the texture of the parts of the regulus may be clogged by sulphur, nitre, alkalies, &c. or so altered by the fire, &c. as to lose its emetic virtue, or not to exert it, when it is not (quite, yea none of it is) destroyed, as will more fully appear, when we come to the preparations: as also that the corrosive quality of the butyrum is owing to the acid of (sublimated corrosive mercury, &c. or of) salt, nitre or vitriol, fixed in via cremenationis. Vide *infra* Mercurius Vitæ.

6. That the emetic stimulus of antimony cannot be extracted from any of its preparations, by water, vinous spirits, oils, or alkalies; neither can it be raised by distillation from wine or other liquors impregnated with it. Vide *Lem. Antim.*

7. That the effect of crude antimony, externally applied, seem to depend on its sulphur; of calcined antimony, on its stimulus. All the antients make it drying and astringent. " Vim habet emplasticam, stypticam, refrigerantem, excrecentia in carne cohibentem, epuloticam, sordes & ulcera oculorum expurgantem . . . ut & in universum dicatur, vis usto plumbo similis est." *Dioscorid.* l. 5. c. 99. " Ad facultatem desiccantem adjunctam habet adstrictionem." *Galen* 9. *Simpl.* 71. " Ultra siccatoriam vim, omnibus metallicis communem, habet & adstrictoriam facultatem; quapropter & ocularibus medicamentis admiscetur." *Aëtius*, *Serm.* 6. c. 72. p. 74.

And indeed were we to compare the history of bismuth, zink, tin, &c. with that of stibium, we should find a greater agreement among them than is commonly observed; and that it is not improbable that antimony might afford medicamenta cicatrifiantia and ocularia, not inferior to lapis calaminaris and tutia, though it is at present very little used externally. I tried a collyrium in which



which vinum emeticum was the chief ingredient, and which was said to have done much good in like cases; and must own with little success. But I tried also unguentum tutiæ with less, yea it had worse effects. I always found a weak solution of white vitriol in rose water, after evacuations, of more use in watery, inflamed or sore eyes, than any greasy application whatsoever.

But what ever reason we may have to doubt of the effects of crude antimony internally taken, since it is commended as an attenuating, deobstruent, and diaphoretic medicine; as a remedy for leanness, scurvy, scrophulæ, French pox, cachexy, epilepsy, diseases of the skin, &c. since it is certainly innocent, or no way hurtful, though taken in large quantities, even to zj. every day; while it is said evidently to fatten horses, swine, &c. and cure them of several diseases, (*Vide Phil. Transf.* No. 39. p. 774.) its use is not to be condemned: it may have succeeded in some, though not in all. The dose may be therefore large; but I think zj. enough at a time. "Antimonium crudum ad zj. aut  
" alteram absque ulla nausea intus exhiberi potest, sæpe in pituitosis sudoriferis  
" & exsiccantibus decoquitur. . . Illa tamen decoctio prorsus inutilis est. . .  
" Antimonium crudum intus sumptum a ʒj. ad zj. viscidam humorum crasim  
" dissolvit & attenuat, obstructions aperit, & tanquam tutum remedium ad  
" cutaneos affectus, ad tabem & epilepsiam quibusdam tutum prædicatur. Ad  
" bruta pinguefacienda plurimum valet. Ad usus externos etiam commen-  
" datur, ad ulcera exsiccanda, ad scabiem & affectus cutaneos sanandos, in  
" unguentis permixtum; in emplastris ad tumores resolvendos; in collyriis  
" ad oculorum inflammationes." *Geoff.* i. p. 220. Yet he owns it is seldom  
used in medicine: and Mr. *Lemery* is afraid that if taken it may remain so  
long in the guts, as, being gradually opened by acids, it may cause super-  
purgations; and therefore mixes antim. crudi, sulphuris communis & ocul.  
cancror. aa p. æ. — "Sicut antimonium finit aurum, sic eadem ratione &  
" forma corpus humanum purum reddit; in illo enim est essentia quæ nihil  
" impuri cum puro confundi finit." *Paracelsus de vita longa*, c. 6.

### S E C T. III.

The most useful preparations of antimony are, 1. The regulus. 2. Sulphur auratum. 3. Vitrum. 4. Hepar. 5. Diaphoreticum. 6. Butyrum. 7. Cinnabaris. 8. Mercurius vitæ. 9. Bezoardicum minerale. 10. Tincturæ. 11. Tartarus emeticus; and, 12. Vinum emeticum.

When crude antimony is given internally it ought to be finely powdered. According to the *London Dispensatory* "singular care ought to be taken, to  
" reduce it into the most subtile powder possible." And the learned transla-  
tor remarks, "antimony is formed in striæ, which, when powdered, break  
" into needle-like fragments, which if not thoroughly comminuted, may by  
" their points wound the stomach: hence no care can be too great for ren-  
" dering these substances smooth." The caution is laudable, but the danger  
imaginary. For antimony is not only so friable as to be very easily powdered,  
yea as to stain by the touch; but breaks into fragments altogether irregular,  
like any gritty substance, with nothing needle-like among them, but some  
few shining scales, thin and flat, neither round nor pointed, when only  
powdered

powdered or bruised by the point of a knife on a table, and viewed by a microscope. Why then *finely powdered*? that it may be the more easily taken, and more fully part-with what can be extracted from it in the primæ viæ. When used in decoctions or infusions it is commonly in *nodulo*.

The dose of it in powder is to gr. ij. or iij, in *Hoffman* and in *Schroder*; to gr. vii, in *Herman M.*; to ʒj. in *Lemery (Ant.)*; to ʒß. in *Lem. (Chym.)*; ad ʒj. in *Geoff. M. M.* Does it not also hence appear, that its effects are not commonly very observable, and that there is little danger in its dose unprepared. But the preparations deserve to be more particularly considered: of which in order.

1. *Regulus antimonii offic.* is the metallic part of antimony, divested of its sulphur; and reduced to a more compact, heavy, shining silver-coloured substance, resembling a metal, but brittle, sparkling, and as it were, crystalline within. It is prepared several ways: as by repeated fusions of antimony per se, or by melting it with salts, chiefly tartar, and nitre; with salts and iron, &c.

We take antimonii crudi, nitri and tartari āā p. æ. according to *Boerb. (Chem. ii. p. 508.)* or antim. p. iv. tartari p. iii. nitri p. iß. according to the *New London Dispensatory*, to make the sulphur antimonii præcipitatum. These powdered, mixed, cautiously deflagrated, and fused, afford the regulus antimonii stellatus, because marked above with a star; though the regulus may be as good without it. If half as much of iron as there is of antimony be added to the other ingredients, we have the regulus antimonii martialis, not essentially different from the former. “*Liquefactione perfecta facta, sola pars metallica stibii cadit pondere deorsum; sulphur antimonii, cum marte roso & nitro, supernatant; leviora separantur. . . Certe hoc experimentum docet, ope ferri, sulphur pulchre educi posse de glebis metallicis.*” *Boerb. Chem. ii. p. 510.* — “*Antimonii ʒxvj. tartari ʒxij. nitri purissimi ʒvj. gave reguli stellati ʒvj. ʒj. & scorix ʒxiv. (so ʒxij. ʒvij. were lost:) the scorix afforded sulphuris aurati ʒvij. ʒiv, & cap. mortui ʒvß. But antimonii, tartari & nitri āā ʒxvj. yielded only reguli ʒvß; and the scorix sulphuris aurati ʒv. ʒß.*” *Vide Lem. Chym. p. 286. and Antim. p. 455.* “*Antimonii ʒxvj, tartari ʒxij, nitri ʒx, and ferri ʒvij. gave reguli antimonii martialis stellati ʒvj, scorix nigricantis ʒxxij, so that ʒxvij. were lost. More regulus may be otherways obtained; but the process is more tedious.*” *Vide Lem. Antim. p. 512.*

The regulus however prepared is violently emetic, and communicates its quality to wine. Of it are formed purgative pills, and vomiting cups, which retain their virtues very long, but not perpetually, as some have imagined. The regulus in powder has been given to gr. v. but I cannot approve of this practice, neither of giving these pills in the iliac-passion. “*These pills, made of the regulus, called pillulæ perpetuæ, purge, but never vomit. One purges as much as two taken together. After one is used about thirty times, its virtue diminishes, unless the surface is rubbed off. The regulus martialis is most prepared for the cups, or rather goblets: filled with wine, in a day or two it becomes emetic; but after they are twenty-five or thirty times so used the wine becomes less emetic, and the inner surface must be filed, to recover their virtue.*” *Vide Lem. Antim. p. 512.*

“ The



" The perpetual pills, though taken and rendered fifty times, will have  
 " purged each time, and yet scarce is there any sensible diminution of their  
 " weight. Wine left in the cups or goblets becomes emetic." *Lem. Chym.*  
 287. " Ex regulo antimonii pocula fiunt, quibus virtus inest eximia & diu-  
 " turna ad vomitum excitandum : vinum enim quod per noctem in illis fuerit  
 " infusum, emeticum evadit. Imo globuli ex eo funduntur, qui millies vo-  
 " rati, vi emetica, qua maxime pollent, non destituuntur." *Geoff. M. M. i.*  
 p. 224. " Distilled vinegar draws no tincture nor virtue from the regulus ;  
 " neither does it any way penetrate it." *Lem. Ant.* p. 520.

" Antimonii reguli communis (& martialis etiam) ℥iv. powdered and cal-  
 " cined, though it fumes for about an hour and an half, yet will weigh ℥iv.  
 " ℥iiss. and are as much emetic as before. But if calcined by a burning spe-  
 " culum, in the rays of the sun, the weight will be increased  $\frac{1}{2}$  : that is ℥iv.  
 " will give ℥iv. 3v. 3j. and be no more emetic than diaphoretic antimony, or  
 " the reguli flores albi." *Lem. Ant.* 524. Vide supra. *Is this calx reducible to*  
*a vitrum?* " Mr. Homberg said that reguli antimonii martialis ℥iv. calcined by  
 " a burning speculum, weighed ℥iv. 3ij. and some grains : and that when he  
 " reduced it to a vitrum, by the same heat, he had only ℥iv." *Lem. Ant.*  
 p. 524. " Regulus hic purus aperiens, fusus denuo cum alcali, novas scorias  
 " sulphureas facit. Neque forte unquam evadit liber sulphure : hinc & sem-  
 " per fragilis : quia sulphur metalla fragilia facit." *Boerb. Chem.* ii. 509. But  
 no cinnabar can be prepared with the regulus. *Lem. Ant.* p. 304.

2. Sulphur auratum antimonii *offic.* is the sulphur of the scorix dissolved in  
 water, and precipitated by an acid. " Quia argento affricum colorem aureum  
 " conciliat, auratum dicitur." *Boerb. Chem.* ii. 514. " Antimony p. i. fused  
 " with a fixed alcali p. ij. is intirely dissolved by the salt, and with it forms  
 " a reddish-yellow mass, soluble in water, whence by an acid a sulphur auri-  
 " tum may be precipitated." Vide *Maq. (Chym.* p. 121.) according to whom  
 it is a violent emetic.

" Thus scorix reguli ℥xiv. powdered, decocted in aquæ ℔vi. (of ℥xvi.  
 " each) filtrated, and with q. s. aceti precipitated, let fall a yellowish-red  
 " powder ; which separated, well washed with water, and dried, will afford  
 " of this sulphur about ℥viii. 3iv." *Lem. Chym.* p. 293. . . . " This sulphur  
 " does not flame in a red-hot crucible, but emits copious vapours smelling of  
 " brimstone : it is of a disagreeable insipid taste, and at first very fetid. An  
 " ounce of it, distilled by a retort, yields a liquor, pellucid like water 3iv,  
 " of an agreeable sourish taste, and strong brimstony smell ; of black flowers,  
 " insipid, and of a sulphureous smell, gr. x ; and there remained at bottom of  
 " a red mass, but black and brilliant in some parts, 3viiss. Sulphur aurat. 3j.  
 " sublimed per se gave grey flowers ; with sal. ammon. red." Vide *Lem. Ant.*  
 p. 459 & 490. He calls it the spiritus sulphuris antimonii. But since this  
 spirit is absorbed by the fixed alcali, it seems more probable that it comes from  
 the precipitating acetum.

" Sulphur aurati 3ij. and sublimati corrosiv. 3iiss, distilled per retortam,  
 " gave liquoris caustici 3vii. cinnabaris 3ß. argenti vivi 3ß. and carbonis 3j.  
 " 3ij. Liquoris caustici 3ij. precipitated in water pulveris algaroth gr. lxvi.  
 " of a yellowish grey colour, fetid and emetic, but not violently so. The  
 " remaining liquoris 3v, treated the common way, afforded bezoar mine-

“ ralis ʒij. (gr. xxiv. or) ʒj, as good as the common. The carbo calcined,  
 “ fumed much and diminished ʒvij, was of a greyish colour and very salt taste,  
 “ from the sal tartari and nitri still adhering to the sulphur, notwithstanding  
 “ the lotions.” Vide *Lem. Ant.* p. 311. “ Sulphur auratum gives only a  
 “ weak yellowish tincture to sp. vini; but a pretty deep reddish brown one  
 “ to ol. terebinthinæ.” *Lem. Ant.* p. 490.

This sulphur auratum therefore differs much from common sulphur, and seems to be a sulphur alcalisatum, or opened by a fixed salt, united to a tartarus regeneratus, and no small portion of the calcined and corrected metallic part, to which it owes its emetic stimulus. . . . There are many ways of separating the sulphur from antimony: but if it be first dissolved by a fixed alkali, and then precipitated by vinegar, I think them all equally good, otherwise not so. Our *Dispensatory* precipitates with sp. vitrioli; and the *New London* one with sp. salis. But neither tartarus vitriolatus, nor sal regeneratus, is to be here compared with the tartarus regeneratus, if the sulphur auratum partake of any of them; as most probably it does. “ Whereas in the process, the  
 “ precipitation is by chymical writers directed with distilled vinegar, of which  
 “ it consumes a very large quantity: our practical chymists have introduced  
 “ the use of the stronger acid of sea salt: and this compendium is here com-  
 “ plied with, both preparations of the medicine having been compared by  
 “ repeated trials, wherein no difference in any sensible effects could be dis-  
 “ covered.” *Pemb. Narrat.* p. 59. Vide *our Pharm.* ed. 1756. p. 202.—What were the sensible effects of either we are not told, neither how they were tried. If only by the senses, as to colour, taste, smell, consistence or the like, or any other way, except by giving them to the sick in such diseases as the sulphur auratum, prepared the same way, is most commended in; they by no means warrant this compendium being complied with, which dishonest avarice first introduced. And considering the Committee had not so good an opinion of this medicine as to allow it a place in their first draught, it cannot well be imagined that they could have time and opportunity to make so many experiments with the one, as had been made with the other. If experience give it for them I am satisfied; but at the same time am afraid, that their complying so much (as they have done in several cases) with the frauds of the chymists, will encourage that set of men to regard no farther the prescriptions of the college than suits with their interest, and to direct rather than be directed by them.

The sulphur auratum is an attenuating diaphoretic and cathartic medicine, of great use in phlegmatic infarctions of the lungs, obstructions in the viscera, &c. and is recommended in agues, scurvy, dropsy, epilepsy, dysentery, and many other diseases, both acute and chronical, somewhat too extravagantly. Yet though it cannot be a panacea, it is perhaps the most useful of all the antimonial preparations.—“ Antimonii sulphur auratum emeticam habet, sed  
 “ blandiorem vim.” *Boerb. Chem.* ii. 514.—“ Purgat supra & infra, dosis  
 “ gr. ij. iij. iv. v.” *Schroder.* 445.—“ It is emetic a gr. ij. ad viij.” *Lem. Chym.* 293.—“ Vehementer purgat per superiora & inferiora, dosis a gr. j. ad iv.” *Ceoff.* i. 224.—“ Hic pulvis veluti panacea habetur, vomitum nonnunquam  
 “ excitat, præsertim dum in ventriculo acida saburra reconditur. Alvum læpe  
 “ & blande movet, si in intestinis humorum congeries sit. Urinam provocat,



“ vel diaphoresin, aut sudorem excitat, dum in sanguine humores pravi permiscuntur. Uno verbo, operationem suam exerit prout natura vergit, ad hos velle illos humores, per hæc vel illa emunctoria, excernendos. Ad evacuum exhibetur a gr. j. ad iv. ad humores incidendos, dividendos, immutandos, ad gr. ß. vel gr. j. sed vicibus repetitis, tertia, quarta, vel sexta quaque hora, in febribus acutis, ubi nimia est humorum cruditas, & spissitudo.” *Geoff. i. p. 226.* where it is commended in malignant diseases, in the small-pox, measles, intermitting fevers, hæmoptoe, chronic distempers, dropsy, epilepsy, scurvy, dysentery, dysury, stone, pleurisy, peripneumony, catarrhs, green-sickness, &c. But he adds, “ Observandum tamen non exhibendum, nisi prius imminuta fuerit, debitis v. f. f. sanguinea moles, & nisi diluentibus medicamentis sufficienter diluatur.” *N. B.* The quotation relates not to the common sulphur auratum, precipitated by an acid, but to that prepared by decocting antimony with a fixed salt, filtrating it while boiling hot, suffering it to subside, washing this precipitate, and when dry, burning over it two or three times sp. vini, which he says is now the most common way of making the kermes mineralis.

The *Cod. Medicam.* retains the sulphur aurat. præcipitat. from the scoræ with vinegar: and also the kermes mineral, giving the process accurately. Vide p. 259. and p. 257. edit. 1748. This may be made either by decocting the antimony or fusing it with a fixed alkali salt, and differs little if at all from the sulphur auratum. Vide *M. Geoffroy's Experiments, Mem. de l'Acad. 1734,* and 1735, or *Macquer Chym. Prat. i. p. 333—39.* But, says *M. Macquer*, the kermes precipitating of itself, by the cooling of the water only, while the sulphur auratum must be precipitated by an acid; which gives reason to suspect that the reguline part is more intimately united to the hepar sulphuris in the sulphur auratum, than in the kermes, l. c. p. 339.

The sulphur auratum antimonii, that it might be kept a secret, went for some time under several fictitious names. Thus it was called panacea & sulphur universaliter purgans by *Glauber.* (Did he conceal it?)—Centaurium minerale by *Cardiluccius* a German chymist;—*Russel's powder in England*;—*Poudre des Chartreux* or kermes mineral in France. (Vide *Geoff. i. 225.*) Of which there is an account given by *Mr. Lemery* in the *Mem. de l'Acad.* for 1720. p. 542. where the author says,

“ Though it was called the Carthusian powder from *Frere Simon* the Carthusian, yet not because he discovered it; for he always owned he had it of *Mr. de la Ligerie*, who got it from *Mr. de Chastenay*, the King's lieutenant of Landau; who learned the preparation from a German apothecary, who had been a disciple of *Glauber.* In December 1713 *Mr. de la Ligerie* communicated this preparation to *Frere Simon*, who in January 1714 recovered with it *Frere Dominique* of a *grosse fluxion de poitrine*, when every body despaired of his life. This at once procured the remedy a surprising vogue. In December 1718 it cured the Marquis de Bayers, when dying in a manner: he took in a short time gr. ix. or x, and in twenty-four hours he had taken gr. xxxvi. of this sulphur auratum antimonii, or kermes mineral, without either vomiting or purging or sweating; but it promoted expectoration in a wonderful manner. The preparation, with its effects, was published by *Mr. de la Ligerie*, Sept. 20, 1720, in a printed paper.”

If the sulphur auratum be not precipitated by an acid it consists of the hepar sulphuris probably and nothing else, and so wants the emetic stimulus, at least has little of it; for I do not conceive how any of the regulus can be dissolved by coction or thus extracted from the antimony. Vide *N. B.* infra. Does it ever excite vomiting? *Nescio*.—Fixed alcalies destroy the emetic stimulus commonly. Vide *New Disp.* p. 349. But Mr. *Geoffroy* by various experiments has demonstrated that the kernies, however prepared, is nothing but an hepar sulphuris united to a certain quantity of the regulus. Vide *Geoff.* and *Macquer*, as quoted above. *N. B.* But does not the fixed alkali turn the sulphur antimonii into a hepar sulphuris, which dissolves part of the regulus?

Does the burning on it sp. vini weaken its stimulus? It seems not to need it; for Mr. *Lemery* says, the sulphur auratum, got by digesting antimony in ol. tartari p. d. and precipitating by rest only, being well washed and dried is less emetic than the common. "I gave it, says he, to several sick persons a gr. iv. ad. x: it had no visible effect on some, others it purged a little with nausea, and others it vomited gently. I thought also it sometimes increased perspiration, finding often a moisture on their skin who took it.—I decocted antimony in a strong lye made of pot-ashes and quick-lime: both the antimony and lixivium became yellow; and the liquor which separated while it was hot, congealed in cooling to a sort of a sapo, which being diluted with a second decoction in water, filtered, and precipitated with distilled vinegar, gave also a sulphur auratum." *Lem. Antimon.* p. 20. & seq. "Dose. ad gr. viii. ad vomitum gr. xii." Vide *Col. Chym. L.* p. 55.

3. *Vitrum antimonii*, & *stibium hyacinthinum offic.* is the reguline part of antimony vitrified by the force of fire; and is one of the most violent of the antimonial emetics. It has been given to gr. vi. but is now seldom used, if it be not in the antimonium ceratum; although wine or tartar impregnated with it, is as safe as the vin. emeticum. Vide *Tartarus Emeticus offic.*

"According to Mr. *Clutton's* analysis of *Ward's* pills, they consisted of vitrum antimonii, zaffra, and arsenicum." Vide *Mem. Acad. R.* 1737. p. 157.

Crude antimony in powder calcined till it becomes gray loses about a third part: for from 3xvi. but 3x. 3xvi. remain, which by fusion turns to glass, of a deep transparent jacinth colour, weighing about 3vss. Vide *Lem. (Chym.* p. 308), who observes that broken-winded horses take vitrum antimon. 3ss. at a time for their relief. . . . Mr. *Geoffroy* observes, that if sp. vini be burnt on it three or four times, levigating it each time on a marble very finely, it becomes so mild, that it may be given to gr. xx. nay xxx. safely, and will operate gently; and that if it be reduced to a most subtile powder and digested for two or three days in sp. vini wherein some mastic is dissolved, and then evaporated to dryness, it does not vomit, but purges only. Dose gr. vi. Vide *M. M.* i. 223. And no doubt mastic would as effectually blunt the violence of the vitrum, as wax does in the preparation of the vitrum antimonii ceratum, were it used the same way; and cera might perhaps be a succedaneum to the mastic, as used above, if dissolvable. This

*Vitrum antimonii ceratum* was kept I don't know how long a secret, even by some of the clergy. At length Mr. *Steel*, Minister at *Lockmaben*, who had it, dying, the receipt was found in his pocket-book, and went from one



hand to another, till *Doctor G. Young* getting it, and having often tried it to his satisfaction, published it in the Edinburgh news-papers. Being found a successful remedy in diarrhœas and dysenteries, it was honoured with a place in our Dispensatory, bringing in the vitrum with it, which had been long out of use.—It often vomits, almost always purges, and in a few cases, as it is said, does neither; and yet cures. Hence it is called a specific\*: how justly, it is not amiss to inquire a little.

In the *Medical Essays* (edit. 1742. vol. v. p. 194, to 219), we have an account of the observations of several practitioners upon the operation and success of this medicine, collected by *Doctor John Pringle*. This learned gentleman says, that he had tried it often in ordinary cases, and once in a dysentery of a long standing, with great success. . . . That this medicine of all others appears to promise the least of an anti-dysenteric; because no man, were he to invent a poison to cause a dysentery, would think of one sooner than the glass of antimony, of which the specific is made. And that it is truly a specific appears from hence, that it cannot be said to cure by its purgative quality, because it sometimes acts as an emetic without purging; nor can it be said to cure as an emetic, because it sometimes purges without vomiting. Nor lastly, can it be said that it operates by being an evacuant in general, because he and others had known it to cure without any sensible evacuation.

I might observe that antimonials as well as other cathartics, as ipecacuan, turbith, gratiola, asarum, yea helleborus albus, (vide *Hippoc.* adscriptum lib. de affectionibus, Linden, p. 177. §. 26), and nicotiana also, (vide *infra*) have long ago been commended in the dysentery, and used with success, and even the vitrum itself extolled, if not in the dysentery, yet as the manus Dei quasi in morbis pituitosis, melancholicis, & pestilentibus, &c. (vide *Matthioli*. p. 927); so that whoever imagines he could bring on a dysentery by it, or that it is a poison, judiciously dosed, will have *Matthioli*, and those he alludes to, much against him. But whatever is in this, I cannot understand why this vitrum ceratum is esteemed a specific anti-dysenteric; for, 1. Granting it cures sometimes without any sensible evacuation, may it not evacuate insensibly, or act as an astringent, or any other way as an alterative. Opium may more properly be called a specific in this distemper. Is an alterative and specific the same?—But 2. Though *Drs. Young, Pringle* and *Simpson*, all assert that this medicine sometimes cures dysenteries without any sensible evacuation; yet as none of them have given all the particulars of such cases, I should be apt to suspect that the cure was owing either to some other medicine which the patient was taking, or to this antimonial, which had produced some sensible evacuation that had escaped their notice. And—3. Crude antimony is now taken instead of the vitrum, and the antimonium ceratum preferred to the vitrum antimonii ceratum, as being as effectual and more safe; which, as I am informed, was accidentally discovered by

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\* It appears that great part of the controversy between the learned author and the recommenders of the *vitrum antimonii ceratum* as a medicine in the dysentery, consists in their differently understanding the term *specific*, which has never yet been so well defined as to lead all physicians to express precisely the same idea by it. With regard to the success, there appears from that paper in the *Medical Essays*, the strongest evidence in its favour; whilst by what our author says afterwards, it seems he had only been concerned in three cases wherein this powder was given.

a patient through mistake taking the crude antimony instead of the vitrum. No doubt the crocus, flores, mercurius vitæ, would do as well, if treated the same way : for as crude antimony is opened and rendered emetic by the fire ; so the already emetic preparations, may by it be rendered as weak as you please. “ The evacuating force of the mercurius vitæ is best moderated by “ keeping it continually stirring, in a flat and well glazed earthen vessel, placed “ over a chaffing-dish of coals, till it emit no more fumes, but becomes of a “ greyish colour ; which is the mercurius vitæ purgans Riverii.” *Boyle Useful-ness, &c. Works* vol. i. p. 518. See *Riverii Prax.* p. 328. See also Mr. *Geoffroy's* remarks on his preparation of the vitrum, *Hist. Acad. cn.* 1745 ; which confirms what I observed above, now more than fifteen years ago, to a demonstration. But I prefer the sulphur auratum to them all in the dysentery.

If we compare the accounts of the success of this medicine with one another, we shall find 1. that they differ as to the dose. Dr. *Young* says, “ The ordinary dose for an adult is gr. x. or xij, but I commonly begin with gr. vi. “ To a strong man I have given ʒj, which sometimes works so mildly, that “ I have thought it too weak.” p. 193. “ I have known it cure without any “ sensible evacuation or sickness.” p. 199. “ I have cured some with one “ dose ; and been obliged to give others five or six, especially when the first “ doses have been too mild ; and I have often thought a weak dose did no “ good in chronic cases.” p. 200. On the other hand *Doctor Simpfon* says, “ Six grains or ten at most is the outside I go to now with any patient, “ finding the lesser doses answer best.” p. 209. Mr. *Paisley* gave of what he prepared himself “ gr. iij. and never above v, and found it wrought as well “ as what he had from Edinb.” given to gr. xij. or xv. p. 205. Mr. *Gordon* says the same p. 219. Hence a small dose does as well as a great one ; or there is a great difference as to the strength of one preparation from another.— 2. That in all the cases related, it either vomited or purged pretty violently. Dr. *Young* says, “ Ten grains frequently operates as violently at first, as xx. “ at last. It sometimes makes the patient sick, and vomits, it purges almost “ every person.” p. 199. See Dr. *Francis Pringle's* two cases, where there is an exact journal of the cure, p. 201—5. Though Mr. *Paisley* and Mr. *Stevens* gave it with diascordium and theriaca Edin. as well as in conserv. rosarum, to a great number of persons (Mr. P. to above 40, Mr. S. to 190.) it always purged and sometimes vomited, p. 215, 16. As it did Mr. *Gordon's* patients in number some hundreds, p. 219. Does it not hence appear, that it is more properly a cathartic, than an alterative ? Dr. *Young* indeed says, “ Nay in “ violent dysenteries they purge seldomer with it, than without it.” p. 199. This is the case in giving rhubarb with calomel, ipecacuan. or the like, also : and the cause is evident ; for by means of these a much greater quantity of fæces and humors being discharged from the stomach and intestines, than otherwise would have been ; a revulsion is made, and the derivation by the rectum, as well as the tenesmus, the immediate cause of it, for a time diminished. Besides they may purge seldomer, and yet carry off a much greater quantity of the same mucous stuff : which is sometimes the case in violent dysenteries, and which ought chiefly to be considered ; though neither this nor the consistence of the stools are mentioned, except by Dr. *F. Pringle* ; who informs us, that they were at first serous : probably they were all so in proportion



tion to the violence of the operation, few medicines purging water more plentifully than antimony, when it goes downward; and fewer so easily and safely. And—3. That an opiate was commonly given after every dose of this specific. It was the constant practice of Messrs. *Stevens*, *Gordon*, and *Paisley*; and Dr. *F. Pringle* gave it oftener than the powder. Opium has cured many dysenteries where this powder has cured one, and all without either purging or vomiting. Is it not therefore more properly a specific anti-dysenteric than the *stibium ceratum*? “*In constitutione quavis huic morbo minus faventi, evacuationes tuto omitti possunt, ac curatio compendiosiori via, solo nempe usu laudani, absolvi.*” *Sydenh.* 189. & 602. who better understood the nature and cure of this disease, at least that kind of it which I had, than any author I have seen. In some epidemic dysenteries, *ippecacuan.* has proved a most successful remedy; in others *cortex eleutherii*; in others this *vitrum ceratum*; in others *balsamics*, &c. But it has been the most common practice to conjoin opiates with them all.

I have no reason to extol this specific, having seen more of its ill than good effects; though I am far from condemning its use, or disbelieving the facts related in the paper before me. The credit of the relaters is as unquestionable, as their intention laudable.—I shall now relate what has fallen more immediately under my own observation. I was concerned only in three cases wherein this powder was given; though to none of them by my advice. The 1st was a man between forty and fifty years old, who by irregular living had been long a valetudinarian. Doctor *Young* and Mr. *Carlile* were with him when I was called. Mr. *C.* asked me if I thought he could bear *rhubarb* ʒj. I answered I could not advise ʒj. then said he my powder can do him no good, and so went off. Doctor *Young* insisted on giving him *vitri cerati* gr. v. (as I remember) a small dose. I consented, looking on him as dying. Accordingly it was given him: it increased all the symptoms, especially the quantity of the blood and mucus; and notwithstanding all we could do, a few days put an end to his life.—The 2d, who was also a middle aged man, had been some days ill, and had taken the powder without any benefit, before I was called to him. I directed his diet, and laid the stress of his cure on *laudanum*. He slept well that night, was easy in the morning, with a good natural pulse: in a word I thought him out of danger. The gentleman who attended him before I was called attributed the change more to the powder than to the *laudanum*, and was so positive that another dose of it would perfect the cure, that I consented to his taking *vitri. ant. cerat.* gr. v. next morning. It was given him: he grew worse, and in a few days died; which gave me no small concern.—The 3d was one cured of the dysentery by this powder, as he said, too soon, which occasioned an uneasy heat and inflammation in his throat ever since: for which, with two other physicians, I was consulted. Whether he judged right of the cause I will not say; but I think it pretty evident that even the dysentery may be wrong cured, if not too soon: and that although the sick should by this disease be reduced to skin and bone, the constitution is bettered, and health confirmed by it commonly. *Tuto imprimis sanandum.*

The dysentery was frequent in the army in Flanders in 1743, and I have heard various accounts of the success of the medicine. Thus *Doctor J. Pringle* writes. "After repeated trials I found the vitrum ceratum antimon, the most specific of all the emetics, not only in relieving the stomach, but also the bowels, if given in the beginning. . . . Yet the operation being always rough, I could not avoid being anxious about the event, and wished to be able to cure the patient, though more slowly, yet with a milder remedy. Wherefore I confined its use to the more obstinate cases, and have observed it to succeed, when other things have failed, if the bowels were tolerably sound, the patient but a little feverish, and not too low. Another inconvenience attends this medicine, which is the difficulty of making it to a standard. Hence it happens, that a moderate dose at one time, will be too little, or excessive at another." *Obs. on Dis. of the Army*, p. 277—79. First Edition. But I have been perhaps too long on this subject.

"Vitrum hoc fere lethaliter emeticum. Cur? Vino molli, non nimis acido, infusum, facit emeticum, sine magna jactura suæ substantiæ; vis tamen hæc exhauritur cito satis infusionis repetitione." *Boerb. Chem.* ii. p. 507. "Vitri antimon. ʒij. infused in vini albi ʒxvi. render it emetic: and after repeating such infusion to the twelfth time, dried and weighed, it was diminished only ʒij." *Lem. Ant.* p. 413. "Vitri antim. ʒiij. nitri ʒj. powdered and calcined for an hour, then fused, did not vitrify, but was a yellowish white mass, and being well washed became a greyish white powder, weighing ʒij. ʒvj. ʒij. without taste or smell, and was but gently emetic a gr. iv. ad. xv." *Lem. Ant.* p. 387. "Vitrum antimonii communicates its emetic quality also to vinegar; also to acid juices, as of pomgrates, berberies, &c. but not to spirit of vinegar (though it be tinctured by it) neither to those acid juices distilled, because says he, divested of their tartar. Waters, simple distilled water, sp. vini, take nothing from it: sp. vitrioli corrodes it. Spiritus vitrioli philos. more effectually whitens it, and mitigates its emetic quality; sp. aluminis, salis & aqua regia have the same effect." *Lem. Antim.* p. 412—440. Hence I think the effect of roasting the vitrum with wax, is evident, viz. the mitigation of its emetic virtue only, as well as diminution of its quantity. . . "When I prepared this quantity (viz. vitri ʒj. with ceræ ʒj.) it lost a drachm of its weight." *Doctor Y. Med. Eff.* v. 197. Hence also by varying the time, or the degree of heat, the strength of the preparation must vary also. Though Doctor Y. perceived no difference in the operation, yet gr. v. of that prepared at Glasgow, was as strong as gr. xv. of what was made at Edinburgh, as is observed above.

## L E C T U R E XXXIV.

4. **H***Epar Antimonii, & Crocus Metallorum offic.* is antimony freed of a great part of its sulphur, opened and demi-vitrified by nitre and fire; whereby it is reduced to a liver coloured mass: which being separated from the scorixæ, powdered and well washed, becomes insipid, and of a brighter colour, and is properly the crocus, as the unwashed mass is the hepar antimonii.

Antimony



Antimony and nitre aa p. æ. finely powdered, mixed and by spoonfulls thrown into a red-hot crucible, iron mortar or the like, bask; the sulphur of the antimony firing or kindling the saltpetre, and thus in an instant calcining, and so opening the reguline part, that is, freeing it of its fixing sulphur, so as to render it a violent emetic. Melting it is not necessary; neither heating the crucible or mortar; for the mixture may be set on fire with any thing burning; Is sea salt of any use, unless it forward the flowing of the mixture? . . . *N. B.* From hepatis 3vij. may be got reguli stell. 3iv. 3j. and sulphuris 3v. 3ij. circiter, as appears by the above-quoted experiments.

“Antimon. crudi and nitri communis aa 3xvj. give of hepar 3vij 3j. But “if fully refined nitre be taken, there will only be hepatis 3viß.” *Lem. Chym.* p. 316.—“(a) Antim. crudi, nitri, aa 3xvi, gave hepatis 3vij, scorix 3vj. 3vij, “florum 3ij. 3viß; 3xij. 3ß. were lost. (ß) Antimon. 3vij. nitri 3iv. “gave hepatis 3v. 3vj, scorix 3ijß: 3ij. 3vj. were dissipated. This is the “most emetic of all. (γ) Antimoni, nitri & sal marini aa 3vij, yielded of “fine half-vitrified reddish-brown hepar 3vj. 3j. (called by chymists magnesia “opalina, and rubinus antimonii), scorix 3xß. so that 3vij. 3ij. were lost. “Washed well it lost only 3ß. in 3i. It is a mild emetic, purging more than “vomiting: the dose is to gr. xv. (δ) Hepatis antimonii 3vij. tartari 3vj, “& nitri 3ij. gave of pure stellated regulus 3iv. 3j. (ε) Hepatis antimonii “3iß, & mercurii sublimat. corros. 3ij. distilled s. a. afforded butyri albi 3vß. “and (the heat being increased) of a substance partly white and partly grey “3ij. 3iß. (the white being part of the butyrum, turned to pulv. alboroth. “and the grey a mixture of mercury and sulphur), and of quicksilver 3viß, “of cinnabar 3iijß, and carbonis 3vij. gr. lxij. resembling scorix; whence “were got reguli stellati 3vß. wrapt up in scorix, which yielded sulphuris “gr. iv.” *Vide Lem. Antimon.* p. 304, 543, 596, &c. Hence 1. supposing there was of the grey substance 3iß. which, added to the cinnabaris 3iijß, makes 3v, and that cinnabaris antimonii contains about  $\frac{1}{3}$  sulphuris (*vide cinnabar infra*), hepatis 3ß. will contain about sulphuris 3j. + gr. iv. in the scorix: and of regulus 3vij. gr. li. and consequently nitri fixi 3ij. gr. v.—2. “By “decocting hepatis 3ß. with salis tartari 3ij. a small portion sulphuris aurati “may be obtained, which is no way cathartic; neither are the filtrated and “evaporated decoction so. The residuum washed and dried weighed 3ij, “and was but a feeble emetic.” *Lem. Ant.* 588. “Materia omni deslagrata “erit coloris fusci flavescentis. In fundo vitri species, supra leviores scorix. “Totam materiem contritam minutim ablue fervida, donec calx fusco-fulva “maneant insipida. Hæc sicca est crocus antimonii. Aquæ filtratur; pellu- “cidæ sunt, instilla pauculum aceti, fiunt aurantiæ, demittunt pulvisculum “ad fundum, simillimum sulphuri aurato, sed subtiliorem.” *Boerb. Chem.* ii. p. 514.

Washing does not diminish, but encrease the emetic quality of the hepar, or carries off what might hinder its action. Hence it is that sometimes the first infusion of the London hepar is not emetic, but the second strong enough. “Our chemists generally neglecting to wash the crocus metallorum, they are “put to great difficulty in preparing emetic tartar, and the medicine at last “rendered very precarious. To obviate this error as much as possible, here “is added the washing of the crocus in a separate article.” *Pembert. Narrat.*

p. 60. and *Lem. Chym.* p. 317. For in the scorix, and even in the hepar, there are a fixed nitre, part whereof being combined with the acid of sulphur produces a neutral salt like tartar vitriolated, and a sort of hepar sulphuris holding a small quantity of the regulus; which clog the hepar, and are separated by powdering and washing. Vide *Macquer. Chem. Prat.* i. p. 322.

The hepar prepared with antimonii p. ii. & nitri p. i. is more strongly emetic than the common; as Mr. *Lemery* observes, both in the treatise of antimony above-cited, and in his chymie p. 321: which quality by increasing the quantity of nitre, in proportion to the antimony, may be weakened in any degree, as will presently appear, yea entirely destroyed. “The crocus metallorum miltior made of antimonii p. ii. and nitri p. i. owes its mildness not to the less quantity of nitre, but to its being powdered along with its scorix.” Vide *Pemb. Narrat.* p. 60. But will not the scorix be separated in the stomach? Is it milder at all thereby? Mr. *Lemery* says nothing of washing this; he makes the dose of it, as well as of the common hepar a gr. ij. ad viij. — The crocus is reckoned somewhat milder than the vitrum, and given to gr. vi. But with us it is used only in emetic wine. “It is used sometimes in collyriums for diseases of the eyes, being deterfiv and drying.” *Lem. Chym.* 321.

5. *Antimonium diaphoreticum, nitratum offic.* is antimony calcined with a triple quantity of nitre into a white powder; or, if melted, into a white mass, and then powdered. If by repeated lotions with water, the remaining salt being washed away, it be rendered insipid, it becomes the antimonium diaphoreticum dulce offic. as the washings filtrated, evaporated and crystallised give the nitrum stibiatum offic.

“*Calx antimonii.* Antimonium in pulverem redactum nitri triplo pondere probe misceatur, & gradatim in crucibulum leviter candens (moderately heated) immittatur, deinde mixtura ab igne remota aqua abluatur, tum a sale adhærente, tum a parte crassiori minus perfecte calcinata.” *Pb. N. Lond.* p. 63. *Lemery* orders the crucible to be red-hot, and after all the powder is in, and the detonation over, the fire (*tres-violent*) to be continued for two hours, so that it liquify or be brought to a kind of fusion; by which means the antimony will be fully penetrated. Vide *Chym.* p. 325. But there is no need of this.—“Antimonii ℥viij. and nitri ℥xxiv. give calcis ℥xxiv. ʒij. (so that here were dissipated ℥vij. ʒvj.) & diaphoretici dulcis ℥xj. ʒj. (℥xij. ʒj. being washed away; though not all salt, for acids precipitate a white powder from the first lotions, which is called flores antimonii fixi, and cerussa antimonii is nothing different from the ant. diaphoretic. washed.)” *N. B.* “Reguli antimon. ℥viij. & nitri ℥xxiv. give diaphoretici loti ℥xij. ʒij. and the lotions evaporated salis ℥xiiß. white, acrid, corrosive and alkaline, so that in the calcination about ℥vij. ʒj. were dissipated. The regulus ant. martialis yields the same proportion of diaphoretic, but not so white; and the lotions also of salt like the former ℥xiiß.” *Lemery Chym.* p. 328.

Diaphoretic antimony contains much less (sulphur, I mean much less) phlogiston than the hepar: from this may be got therefore considerably more regulus by reduction, than from the diaphoretic. For (a) “No cinnabar can be obtained by distilling diaphoretic with corrosive sublimate.” *Lem. Ant.* p. 306. “Diaphoretici & salis tartari āā ℥ij. fused in a crucible for an hour, gave an heavy white mass of ℥ij. ʒj. which digested in sp. vini two days, Vol. I. S i “ yields



“ yields a red tincture like wine, or other tinctures of antimony, and of the same virtues.” *Lem. Antimon.* 618. Ant. diaphoretic is not quite free from sulphur. But perhaps the tincture was from the salts. “ Antimonii diaphoretici ℥ij, tartari ℥i℥, nitri ℥j, mixed and melted s. a. gave reguli stellati ℥iv. with much scoria of a pale white colour. The regulus is as emetic as the common, and the scorix tinctured sp. vini as well as diaphoretic ant. fused with sal tartari.” *Lem. Ant.* p. 619. Whereas hepatis ℥ij. gave reguli ℥j. gr. xv. Hence much of the reguline part of antimony (viz. about  $\frac{3}{4}$ ) is destroyed in preparing the diaphoretic antimony.

To discover what proportion the regulus bears to the saline part in diaphoretic antimony, it must be observed ( $\alpha$ ) that antimonii ℥viii. yielded diaphoretici loti ℥xj. ℥j. So the additional weight of ℥iij. ℥j. must be of the still adhering nitre. ( $\beta$ ) Again antimonii ℥viii. yielded sulphuris aurati ℥iv. ℥ij. which must be consumed in deflagrating the nitre, and its weight supplied by the salt. And ( $\gamma$ ) the regulus being by calcination increased in weight, a twelfth part or so, ℥vii. must be deduced from the reguline (and added to the saline) part. So that without bringing into the account the ant. diaph. which may be got from the lotions, ant. diaph. dulcis ℥xj. ℥j. contain reguli ℥iij. ℥v. ℥j, and nitri fixati (℥iij. ℥j. + ℥iv. ℥ij. + ℥ij. =) ℥vij. ℥iij. ℥ij; and consequently if none of the regulus was destroyed, ant. diaph. ℥ij. would afford reguli ℥v. ℥j, or ℥xvj, whereas only ℥iv. can be revived from it; ergo  $\frac{3}{4}$  parts of the regulus are destroyed in preparing diaphoretic ant. but little if any in preparing the hepar.

The *nitrum stibiatum* is not a sal polychrest, sulphuris ℥iv. not being sufficient for nitri ℥xxiv. to produce a polychrest; so that one would think it were of the nature of sal prunella. But if it be an alcali (and assez acre), and make but a small detonation on live-coals, as Mr. *Lemery* (*Antimon.* p. 602.) asserts, it must differ from both. And *Boerhaave* says when the washings are evaporated to dryness “ remanet materies alba salina, saporis singularis, non ingrati, non nitrosi, sed blandioris, est nitrum stibiatum. Scitur mutatio hinc nitri “ in antimonii detonatione in salem novum.” *Chem.* ii. 517. It is a salt partaking of sal prunellæ p. v, sal polychrest. p. 1 $\frac{1}{2}$ , and calcis antimonii p. 1.—*N. B.* “ The saline substances mixed with the ant. diaph. which the water “ dissolves are 1. an alcalised nitre; 2. a neutral salt, formed of the acid of “ sulphur, and part of that alcali, as in the hepar ant. 3. Some nitre not decomposed.” *Macquer Chem. Prat.* i. p. 327. The lotions contain also some of the finest part of the calx of antimony, united to the fixed nitre, which keeps it suspended in the water. It is separated by mixing an acid with the water, which uniting with the alcali, precipitates that matter in the form of a white powder, called *matiere perlée*, and by some chymists, though very improperly, antimonii sulphur. fixum. It is a true calx, and altogether irreducible into a regulus, *notante eodem*, l. c. Where he also directs how this diaphoretic may be prepared in close vessels, and what arises during the detonation collected, viz. some flores antimonii and an acid liquor (composed of part of the nitrous acid, and the acid of vitriol or sulphur) called antimonii clyffus.

However much the common, or washed diaphoretic antimony has been commended as a diaphoretic and alexipharmic, in malignant, inflammatory, and other diseases, I think there is reason to believe it absolutely useless in medicine.

dicine. The nitrum stibiatum seems to partake of the nature of sal polychrestus and sal prunella; if it does not, I can affirm nothing concerning it.

“ Calx antimonii diaphoretica, diaphoreticum minerale, vel antimonium diaphoreticum fit deflagrando per vices antimonium crudum, aut regulum antimonii, cum triplici quantitate nitri commistum. Sic enim omne sulphur antimonii a sale acido nitri figitur. Calx que post deflagrationem remanet alba pluries abluenda est aqua calida & exsiccanda. A gr. x. ad ʒʒ. vel ʒj. exhiberi potest. Diaphoreticum est egregium, modo sufficienti dosi intus sumatur. Obstructiones resolvit, humores crassos ac lentos attenuat & dividit, & per cutis poros, sensibiliter vel insensibiliter, pellit. In omnibus morbis malignis, in pleuritide, in rheumatismo, in erysipelatosi, & cutaneis affectibus convenit, & feliciter præscribitur. Usurpatur in pulvere Cornachini & in pulvere febrifugo R. Mortoni.” *Geoff. M. M. i. p. 232.*

“ Stibium diaphoreticum nitratum, rite paratum, ʒʒ. copia haustum, vix aliquid sensibilis mutationis adfert, nisi quod respectu nitri fixantis, adhærescentis, moderate aperit, hinc in acutis boni quid præstat. Tum solent chemici vocare diaphoreticum, putantque tum venenum arsenicale antimonii fixatum esse, ope pluris nitri. Sed jam in stibio nihil emetici erat, licet ad plures drachmas ingereretur simul, absque ulla præparatione, absque ullo omnino nitro; quum æqualis pars nitri excitaverat illam vomendi; vim excitantem: ne igitur nimis ratiocinentur, experimento tuti. Discat B. Valentinus, & cum eo chemici, non opus tanta cura, ut solcite liberatur nitro fixante hoc stibium diaphoreticum: non facit anxietates, nauseas, vel vomitus; sed benignam stimulationem. Plus mali a calce abluta, alba, insipida, ponderosa. Iners, noxia calx est, carens omni actiuo deprehendendo per observationes, carens omni bono quod prius adhærescebat. Solum agit sensibiliter, quando duplicata parte purgantibus miscetur, revera horum vires acuens, ut in pulvere Cornachino, certissimis exemplis constat. Aliter usum ejus dissuadeo.” *Boerb. Chem. ii. p. 516.*

“ Nitrum stibiatum aperit blande, in phlogistica sanguinis diathesi pulchre dissolvit densitatem inflammatoriam sine violentia, ad diaphoresin, blandos sudores, diuresim feliciter disponit; hinc refrigerat, in variolis, morbillis, pleuritide, peripneumonia, boni usus. Quam male ergo ut noxia vulgo hæc aqua abjicitur.” *Boerb. Chem. ii. p. 518.*—On this preparation I must observe, that 1. It has neither taste nor smell; alcalies volatile or fixed make no change on it; nor is it absorbent. “No acid makes any solution of ant. diaph. neither is any way weakened by it.” *Lem. Ant. 616. Chym. 327.* He says indeed that “ant. diaphoretici ʒiv. sublimed with salis ammon. ʒij. gave of a liquor resembling sp. salis ammon. about ʒij, besides reddish flores ʒij. which neither vomited nor purged taken to gr. xii.” *Antim. p. 617.* And thus it acted like an absorbent, by reason of the adhering fixed nitre. But it cannot meet with such a degree of heat in the stomach as is necessary to sublimation, or to actuate its antacid virtue.—2. If it were diaphoretic when given to ʒʒ. or ʒj. certainly its effects would be very observable, if triple or quadruple that quantity were administered; yet they are not so.” “Its dose is generally small in common practice, being from gr. v. to ʒʒ. But Mr. George Wilson, an experienced and faithful chymist says he has known it given by ʒʒ. at a dose, and repeated two or three times a day, for some days together, without hurt.” *Quincy, Ph. p. 260.* “Its usual dose is from



“ gr. v. to xxv; but I have known it given with good success, by half an ounce at a dose, and repeated two or three times in a day, and that for several days successively.” *Wilson, Chym.* p. 95. — 3. It is not only commended by some in too many diseases to be efficacious in any; but also condemned as useless by not a few of the best judges, as the great *Boerhaave, Fred. Hoffmannus, Vigani, &c.* Mr. *Lemery* says its evacuating by perspiration is not easily observable. *Antimon.* p. 608. (Vide *Chym.* p. 327. where he observes also that no acid whatever can make any solution of it, nor is in the least weakened by it.) “ The diaphoretic antimony is not dissolvable in any acid.” *Macquer.* l. c. p. 330. “ Antimonium diaphoreticum till its medical qualities shall be better agreed on, may more unexceptionably be called antimonii calx.” *Pemb. Narrat.* p. 64.

But is its being a calx iners, *carens omni actuoso omni bono*, consistent with its effect on purgatives, its *revera horum vires acuens*? Both which are asserted by *Boerhaave*. I answer, both may be true; for though it be an unactive substance, and undissolvable, yet being mixed with a very resinous cathartic, such as scammony in the pulv. Cornachini (more properly pulv. comitis Warwicensis) the instance given by that great man, by keeping its parts from running together by the heat of the stomach, and so facilitating its solution by the juices and action of that viscus, it may quicken and increase its operation, especially if mixed duplata parte, whereby the action of the purgative becomes the more diffusive. For that the ant. diaph. is not purgative is agreed on by all. And none can deny that scammony, or any other medicine, will more effectually operate when divided into very small parts, than when taken in a lump. *Fred. Hoffman* indeed says that “ antimon. diaphoreticum is an indolent calx; “ and that whether taken alone, or mixed with other substances, it does not “ produce any singular effect.” Vide *Obs. Phys. Chymicæ*.

I will not call this effect on scammony singular, because crabs eyes, chalk, or bole, might perhaps do as well. And instead of the pulv. Corn. Warwic. the *New London Dispensatory* substitutes a pulv. e scammonio compositus; which is, “ R Scammon. ziv. C. C. calcinat. & ppt. ziiij. Diligenter in pulverem “ terantur.” Their committee having declared that “ they believe few would “ make the calx, called diaphoretic antimony, an ingredient in a purge.” *Pemb. Narr.* p. 99. It is however an ingredient in the powder I believe every where, and particularly here; and experience proclaims it a very good purge. Is it not as good an ingredient as C. C. C? certainly better; especially if the ant. diaph. be yet washed, as it seems to have been in the original receipt, and ought to be by ours, *dulce* not being added.

Again, this diaphoretic is said to become really emetic by being for some time exposed to the open air. Thus *Zwelfer*, and I think he first, asserted, “ Observandum quod antimonium diaphoreticum quocunque modo paratum. “ sit, tractu temporis aeri expositum pravam & quasi malignam induat natu- “ ram, sumtumque intra corpus, cordis angustias, cardialgias, lipothimias, “ vomitusque & similia prava symptomata procreet.” *Mant. Herin.* p. 464. & *Pbregia*, p. 574. where he says that he was witness to its bad effects. “ I “ kept a pound of diaphoretic antimony ten years; I exposed it also to the open “ air and dews; after which I gave it to several persons, and took it myself, but “ could observe no emetic effect from it. The diaphoretic that becomes eme- “ tic

“tic by age, is that which has been prepared with too little nitre, and not sufficiently fixed by calcination, *e. g.* prepared of antimony p. i. and nitri p. ii. It is also essential to bring the matter to fusion, or near it in the crucible; that the antimony may be entirely absorbed, by the nitre; for if there remain any part of it, not fully fixed, it may communicate to the mass an emetic quality to some degree.” *Lem. Antim.* p. 608. But whether it become emetic or not through time matters not; for when it is emetic, none will call it inactive, more than the regulus revived from it, however useless it was before.

The *nitrum stibiatum* appears to be such a salt as might be composed by deflagrating nitri p. vi. with sulphur. p. i. and therefore is neither a sal polychrest, nor sal prunell; though it comes nearer in nature to the former than to the latter: but whether the sulphur of antimony has the same effect on nitre, as common brimstone has, in this process, I cannot determine. If it has, we need not destroy so much antimony to obtain this salt: if it has not, experience only can determine the difference: only it is not improbable, that as a small quantity of the calx of antimony fixed by the fire in a much larger quantity of this polychrest (there not being calcis ℥viij. in ant. diaphoret. ʒj.) renders it altogether inactive, so still some of the calx may adhere to the *nitrum stibiatum*, and alter its nature, if not increase its efficacy. “It may be called sal polychreste stibial, for it is nitre calcined, and in part fixed by the sulphur of antimony: it contains a little diaphoretic mineral, which remains dissolved in it.” *Lem. Chym.* p. 326.

Now since antimony p. i. deflagrated with nitri p. ℞. becomes violently emetic; with nitri p. i. also strongly emetic; with nitri p. ij. much milder; (which is the antimonium emeticum mitius *Boerb. Chem.* ii. p. 515;) and with nitri p. iij. loses its emetic quality intirely; and all (almost in an instant) these changes are produced by it, which can be effectuated by fire alone, only in a much longer time; we see that nitre not only assists the fire more suddenly to consume the sulphur, to open, penetrate and calcine the regulus, and to destroy it in part; but also that fixing in it, or sheathing it, it can diminish more or less, or even destroy its emetic quality, without entirely destroying the regulus, according to the quantity of the fixed nitre, so is the nitre by the antimony, in the washed diaphoretic, that it is rendered quite unactive: and I think there is as little reason of being afraid of its being noxious, as there is of the bezoar and boles, or of any indissolvable powder, which water can dilute.

6. *Butyrum antimonii offic.* is the reguline part of antimony, dissolved and rendered excessively caustic by the acid of sublimate mercury in sublimation, rather than distillation. It may be prepared of crude antimony, of its regulus, hepar, vitrum, &c. where the regulus is not destroyed.

If crude antimony and corrosive sublimate mercury, be powdered, mixed, and in proper vessels distilled or sublimed, both the butyrum, and cinnabar may be obtained. For by the force of the fire, and attraction of the metallic part of the antimony, the acid in the sublimate leaves the quicksilver, joins itself to the regulus, and together with it sublimes into a volatile vitriol of antimony, called butyrum antimonii, consisting of the purest regulus of antimony and the acid of sea salt conjoined. If when no more of this arises, and the reddish vapour appears, the recipient be changed, and the fire in-



creased, the sulphur of antimony and the quicksilver left behind in the retort catch hold of one another, and sublime into cinnabar. *Mira hic ignis vis!*

The *Pharm. Edinburg.* orders for their process antimonii and mercurii sublim. corros.  $\bar{a}\bar{a}$  p.  $\bar{a}$ . as does also Mr. Geoff. (*M. M.*) Boerhaave (*Chem.*) takes antimon. p. j. merc. corros. p. ij; which proportion the *Pharm. Nov. Lond.* follows, though the *Pharm. Vet. Lond.* had  $\bar{a}\bar{a}$  p.  $\bar{a}$ q. Mr. Lemery says antim. p. iij. for mercur. sublimat. corrosiv. p. iv. is the fittest proportion, yielding the greatest quantity both of the butyrum and of the cinnabar. According to him antimon.  $\bar{z}$ vj. and mercur. subl. corrosiv.  $\bar{z}$ vij. will afford of pretty white and pure butyrum  $\bar{z}$ ij.  $\bar{z}$ vj. and cinnabar  $\bar{z}$ vij. and sometimes there will be in the recipient about argenti vivi  $\bar{z}$ ß. there remaining in the retort of a shining crystalline black mass  $\bar{z}$ ij. so that there were dissipated during the operation  $\bar{z}$ j.  $\bar{z}$ iß. And from the residuum may be got of pure stellated regulus  $\bar{z}$ ivß. *Lem. Chym.* p. 346. Macquer's proportions are six parts of antimony for eight parts of sublimate, (*Chym. Prat.* i. p. 349.) which are the same with Lemery's; as they are also when the butyrum is prepared with the regulus. . . . Again reguli antimon.  $\bar{z}$ vj. require m. sublim. corros.  $\bar{z}$ xvj. in order to obtain as much butyrum as it can afford; for by increasing the proportion either of the one or of the other, the quantity of the butyrum cannot be increased. Vide *Lem. Chym.* p. 343. This confirms the justness of his proportion of the sublimate to the crude antimony. "From antimon. reguli  $\bar{z}$ vj. & subl. corrosiv.  $\bar{z}$ xvj. he had butyri  $\bar{z}$ vij.  $\bar{z}$ vj. argenti vivi  $\bar{z}$ x. and there remained "in the retort  $\bar{z}$ iß. of a black, white and red substance, which is the most "terrestrial and most sulphureous part of the regulus, and is rejected as use- "less." *Ibid.* Mr. Lemery distilled also with corrosive sublimate antimonii hepar, diaphoreticum, bezoar minerale, sulphur auratum, magesterii, flores, and cinnabaris. For which vide *Antimon.* p. 304, &c. N. B. The butyrum antimonii may be prepared also with mercurius dulcis, panacea mercurii, mercurius præcip. albus, flavus; &c. with silver dissolved in aqua fortis, and precipitated with salt water. *Lem. Chym.* p. 349—353. — "Antimonii crudi  $\bar{z}$ iß. " & mercurii dulcis  $\bar{z}$ ij. gave butyri  $\bar{z}$ j, argenti vivi  $\bar{z}$ j, cinnabaris  $\bar{z}$ j.  $\bar{z}$ ij. "and residui  $\bar{z}$ vij. yielded reguli  $\bar{z}$ ij. (so that  $\bar{z}$ ij. were lost.) The butyrum "was as good as the common." *Lem. Antim.* p. 322, &c. — "In distilling "crude antimony, and corrosive sublimate, there first arises a little clear oil, and "the fire being increased to the second degree, there will appear in the neck "of the retort, a white liquor, thick like wax, which stopping the passage "would make all burst, if care was not taken by holding live coals near, to "melt it, and make it run into the recipient." *Lem. Chym.* p. 344.

"Butyrum hoc liquefcit facile in humido aeris, tum amittit pelluciditatem, "albet, & pulverem candidum præcipitat. In calore liquefcit fufum, glau- "ciatur iterum a frigore." *Boerb. Chem.* ii. p. 521. — "Fiat distillatio ex re- "torta, leni igne arenæ; quod in retortæ collum ascendit, aeri exponendo "in liquorem resolvatur." *Pb. Nov. Lond.* p. 64. "Collum retortæ abscif- "fum, relinquatur in loco humido, donec pinguedo ei adhærens in liquorem "solvatur." *Pb. Lond.* edit. 1721. p. 136. — "Vel fervari potest hoc coagu- "lum, vel aperta phiala, in colla, five loco humido relictum, in oleum, seu "liquorem solvi, qui postea diligenter asservandus, vase probe obturato." *Pharm. Lond.* edit. 1732. (*An & 1619?*) This receipt seems never to have

been altered till 1721. Compare them. — If the butyrum be distilled again, “Erit forma fere liquida olei antimonii. Si hoc oleum tertia distillare facis vice, limpidus erit, & vasis clausis rite servatum, tale persistabit.” *Boerb. Chem.* ii. 522. It is a most violent caustic, & quasi lapis infernalis. Of it is made the mercurius vitæ. — “Butyrum hoc est causticum præsentissimum, faciens escharam omnium celerime, & celerime seperabilem plerumque eodem quo facta die.” *Boerb. Chem.* ii. 521. — Some give butyrum antimonii gut. ij. vel iij. in broth for a vomit. It operates like mercurius vitæ. But since one cannot be exact enough in the dose of such a powerful emetic, in giving it by drops, I don’t approve of that method.” *Lem. Chym.* p. 349. — Butyrum antimonii, quod & spuma venenata duorum draconum nuncupatur, causticum est insigne, carnis excrescentias absumit, & sphacelum sistit.” *Geoff.* i. p. 230.

7. *Cinnabaris antimonii offic.* is the sulphur of antimony united to quicksilver, or quicksilver fixed by the sulphur of antimony, and sublimed by the force of fire. It is commonly prepared in the same process with the butyrum; though there are many other ways of doing it. For “Mineræ antimonii 3vj. and sublimati corrosivi 3viij. yield cinnabaris 3vij. But mineræ 3v. and mercur sublim. 3viij. gave very near the same quantity.” *Lem. Antim.* p. 209. By distilling cinnabar. antimon. 3iv. with salis tartari 3viij, it appears, that this cinnabaris 3iv. contain sulphuris 3vij. and argenti vivi 3iij. 5j. The sulphur given to gr. viij. had no sensible effect.” *Ibid.* p. 231. *Vide etiam Chym.* p. 349.

The cinnabar of antimony is commended in epilepsies and many other diseases. But if it differs in any thing from the common factitious cinnabar, it must be owing to some parts of the regulus adhering to it; whereby it may cause nausea, and vomiting if given in sufficient quantity. The common dose is to gr. x. or xii. — “Cinnabaris antimonii commendatur ad omnes capitis ægritudines, præsertim ad epilepsiam, nec non etiam ad luem veneream; per sudores humores pellit. Dosis a gr. vi. ad xv.” *Geoff.* i. 230. — “I have not observed its effects to be different from those of common factitious cinnabar. I never knew it raise a salivation.” *Lem. Antimon.* p. 209. “I poured on washed cinnabar of antimony white wine ad supermin. 5 aut 6 digit. digested and decocted the mixture, and gave of the filtrated wine 3iv. It caused nausea and purged downward. But neither the wine nor the cinnabar changed their colour. Sp. vin. tartarisatus, spiritus aceti, aluminis, vitrioli, made no solution or change of colour. Spiritus nitri, and salis aa p. æq. mixed, dissolved about  $\frac{1}{2}$  of the cinnabar.” *Vide Ibid.* p. 216 ad 226.

“The cinnabar of antimony is generally much more esteemed for medicine, than the common cinnabar; yet after having examined the effects of both on several occasions, I found them alike, and observed nothing particular in that of antimony, except that being taken in a large dose, it sometimes causes little nausea.” *Lem. Chym.* p. 349. If it be asked how comes the wine to be rendered emetic, or the cinnabar to cause nausea, since the sulphur separated from the cinnabar by distilling it with sal. tartari had no sensible effect; I answer, the reguline part of the sulphur might be destroyed by the fire, or its stimulus sheathed by the fixed salt. — “This cinnabar is seldom to be met with in the shops. It is diaphoretic and a powerful alterative in all chronic cases. Its dose from gr. vi. to xx.” *Quincy Ph.* 265. Mr. *Lemery* com-



commends it for phlegmatic diseases of the brain, also for the asthma. *Chym.* p. 350. *Verbo, de viribus ipse dubito.*

8. *Mercurius vitæ*, and *pulvis algaroth offic.* is the antimonial part of the butyrum, separated from its corrosive acid by precipitation and lotion in water; or it is the washed butyrum. For the butyrum (if coagulated after being first melted, or if rectified or liquid) poured into warm water, instantly parts with its acid, and precipitates a white powder, which by repeated washings being rendered altogether insipid to the taste, and then dried, is the *mercurius vitæ*, falsely so called, no mercury being in it. The water in which it was precipitated, being strained off clear, and evaporated till it become very acid, (or distilled by a moderate heat, till all the insipid phlegma be separated) is called *spiritus vitrioli philosophicus*, though it is nothing but the diluted acid or spirit of sea salt. Vide *Boerb. Chem.* ii. p. 524. — “Butyri (made of the regulus)  $\text{℥iv.}$  yields of *mercurius vitæ* well washed and dried  $\text{℥j. 3vj.}$  and therefore contain *sp. acidi*  $\text{℥ij. 3ij.}$  in which its corrosion consists.” *Lem. Chym.* p. 355. But the acid in the sublimate mercury necessary for preparing butyri  $\text{℥iv.}$  from the regulus, not exceeding  $\text{3x.}$  the other  $\text{3viij.}$  must be phlegma, or I don’t know what. “*Pulv. algaroth, nitri & tartari*  $\text{āā 3j.}$  (mixed and managed as in preparing the regulus) gave reguli purissimi  $\text{ḡvβ.}$  *scoriæ albæ*  $\text{3iβ.}$ ; whence may be got sulphuris *gr. xiv.* of which *gr. vi.* cause nausea and loosen the belly. The *pulv. algaroth* may be again turned to butyrum, the common way.” *Lem. Ant.* 198. Hence *mercurii vitæ*  $\text{3j. 3vj.}$  yield only reguli  $\text{ḡix. gr. x\frac{1}{2}.}$  Now butyri  $\text{℥iv.}$  affording *mercur. vitæ*  $\text{3j. 3vj.}$ , butyri  $\text{3viij. 3vi.}$  will give *mercur. vitæ*  $\text{3ij. 3vj. gr. xij.}$  nearly, whence can be revived only reguli  $\text{3vj. gr. lii.}$  (though reguli  $\text{3vj.}$  were employed in preparing  $\text{3viij. 3vj.}$ ) that is little more than  $\frac{1}{7}$  part. Much more therefore of the regulus is destroyed here than in preparing antimonium diaphoreticum; but however much of the sulphur is consumed or separated in preparing the regulus, yet still some remains in it, according to Mr. *Lemery’s* experiment. — “*Pulvis ille nihil habet omnino mercurii in se, quidquid bonus Billichius pugnet, in paradoxis chymiatricis, sed purissimum stibii regulum. Cepi mercurii vitæ propria manu parati 3xj: inditas crucibulo capaci, forti, posui in foco ante sollem. Liquecebat pulvis fusus, simulac crucibulum bene percanduit ab igne. Ubi cuncta accurate fusa, effundi in conum fusorium. Habui reguli, mire aggestis aculeis constantis, splendentis, sed aliquantulum cinerescens, uncias decem.*” *Boerb. Chem.* ii. 523. which is nearly quadruple of what Mr. *Lemery* got. Was it a regulus? This is another of the most violent of the antimonial emetics, given to *gr. iij. or iv.* It is commended in quartans, manias, epilepsies and the like obstinate diseases; but it is seldom used now-a-days. — “*Mercurius vitæ appellatur & pulvis angelica, pulvis algaroth, aquila alba. Totius corporis, præcipue primæ viæ regionis humores noxios, per secessum ac vomitum expurgat, ususque insignis est in peste, capitis morbis, lue venerea, ulceribus malignis, febris, arthritide, hydrope, ubi ut plurimum sine vomitu operatur. Dosis a gr. ij. ad iv. macerare quoque licet gr. ij. ad iv. in haustu vini eumque filtratum adhibere. Sunt qui infusionem in promptu habent, R Merc. vitæ 3β. vini generosi 3xviij. Dosis 3j. N. 1. vis purgatrix hujus, ut & vitri antimonii, nunquam exhauritur. N. 2. triduanum ejus usum sæpe procidentiam ani periculosam excitasse compertum est.*” *Schroder.* p. 415.

“Efficaciter

“Efficaciter purgat per vomitum & secessum. Dof. a gr. ij. ad vi.” *Geoff. i. 231.* “Algoroth. . . In *Morellii Collect. Chym. Leid. c. 57. Proc. 3 & 4.* “dicitur pulvis algoreth, ab Algoretho, medico Veronensi ita dictus,” ex *Hartman. Tyrocin. Chym. c. 12. Castelli Lex. Med. p. 31.* — “It has its name from a physician called *Algaroth*, who was one of the first who used it. “Jockies recommend it for the purfiness or short-wind of horses, giving ʒʒ. for a dose. It does not dissolve in spirit of nitre, nor in common aqua regia; but is dissolved by a mixture of spirit of nitre, salt and vitriol, which is a kind of aqua regia: if this solution be evaporated, and spirit of nitre thrown on it twice, repeating each time the consumption of the humidity, it will become bezoar minerale, like the common described below.” *Lem. Chym. 355.* “The dose is a gr. ij. to viij. *Ibid. p. 354.* — “Ita acidum salis marini hæret regulo stibii tantum quamdiu meracissimum; sed debilitatum minima copia admistæ aquæ, statim inde recedit, inque aquam trahitur. “Pulvis ille datus ad gr. ij. vel iij. violente emeticus, unde a funesto eventu mortis mercurium alii dixerunt. Si pulvis ille diu, leniter, vitro impositus igni exponitur, & assidue agitur, amittit virulentiam, fit magis iners, arcanum Riverii multis tum dicitur.” *Boerb. Chem. ii. p. 523.* Hence we see (a) that this powder is not corrosive; (β) that the inertia antimon. diaphoretici is not owing either to the consumption of the sulphur, or destruction of part of the regulus; and (γ) the effect of even a gentle fire on this violent emetic. Might not antimonium ceratum be made of this powder, as well as of the vitrum, hepar, &c?

9. *Bezoardicum minerale offic.* is the antimony in the butyrum, first entirely dissolved, and then fixed by the spirit of nitre, and calcination; and reduced to a white, light, grumous powder, of an agreeably acid taste, neither caustic, nor emetic.

“For if on butyrum antimon. there be poured gradually good spirit of nitre, so long as there is any effervescence, it will be entirely dissolved into a clear reddish liquor; for which commonly as much spirit is required, as there was taken of butyrum. If ʒij. of each be used, the solution evaporated dry, there will remain a white mass ʒjʒ. Fresh sp. nitri ʒij. poured on it a second and a third time, and evaporated as often, neither alters the colour, nor diminishes the quantity, there remaining still a mass of ʒjʒ. and white as before. But the sand-heat being a little increased, and the mass calcined for half an hour, it will be reduced to about ʒj. ʒiij, and is the bezoar mineral.” *Vide Lem. Chym. 357.* It ought to be washed and dried; tho’ there is no danger in its acidity: whence the lotion is omitted by *Lemery*, and our Dispensatory. *Præcipitatus hic postea teratur, abluatur & igniatur.* *Schred. p. 416.* “Aqua tepida eluatur pulvis & exsicceetur.” *Geoff. i. 232.* “Aqua ablue & sicca.” *Codex Med. p. 243.* “Dein edulcetur abluendo, & desuper accendendo tertio quartove spiritum vini.” *Pb. Londinenses.* — In the first draught of the committee for a new Dispensatory the process is much shortened; in the second plan, and new Dispensatory it is omitted. “Bezoar minerale. “Butyro antimonii gradatim effunde spiritum nitri vel aquam fortem, donec omnis effervescencia cesser, deinde distilla ex retorta ad siccitatem; & massam residuam tritam calcina in crucibulo lento igne, quamdiu fætores spirituum acidorum exhalare sentitur.” *Pharm. reformat. p. 95.* which is *Le*



Mort's process; only he distills ad consistentiam pinguedinis usque only. *Vedi Collect. Chym. Leid.* p. 102. And indeed, as he observes, there seems to be no need of a second or third affusion of sp. nitri, no change being made on the mass by them. Mr. *Geoffroy* l. c. has a compendiosior præparatio, which is the washed magistery reguli antimonii  $\mathfrak{zj}$ . dissolved in aq. regiae  $\mathfrak{ziv}$ .

"This change, says Mr. *Lemery*, is pretty surprizing, and it is hard to conceive, how a corrosive acid spirit should sweeten a substance, which is a caustic only, by reason of the acid spirit it contains." *Chym.* 359. "But this difficulty is easily reconciled. . . . Spirit of salt adheres so closely to such metallic substances as it dissolves, as not to be separable by the bare action of fire, but arises along with them; while on the contrary spirit of nitre, not only parts with most of the substances it has acted upon, as a menstruum, but likewise effectually separates and disjoins the spirit of salt from these, which otherwise would retain it too strong for the action of the fire." *Pharm. reformat.* p. 96. But the corrosive spirit is not all separated. For "Bezoar mineralis  $\mathfrak{zij}$ . distilled per retortam, gave liquoris ut aqua pellucidi,  $\mathfrak{zij}$ .  $\mathfrak{ss}$ . very acid; a small quantity of a white corrosive matiere butireuse; and there remained of a yellow saltish powder  $\mathfrak{ziss}$ . at the bottom. But no regulus could be got from it. The liquor must be a part of the spirit of nitre retained by the bezoar." *Lem. Antimon.* p. 202.

"Calcination does not render bezoar mineral emetic, I could not vitrify it, neither reduce it to a regulus, by any art." *Lem. Ant.* p. 205. Nor is it necessary it should, for the calcined antimony may blunt it. If therefore we consider that the magisterium antimonii prepared with aq. regia is emetic; but if several times penetrated by the same menstruum becomes as unactive as common diaphoretic, (which yet by calcination may again be rendered emetic, *ibid.* p. 12); and that the regulus in the bezoar is entirely destroyed, so that distilled with sublimate corrosive it affords no butyrum, it will not be difficult to conceive how the spiritus nitri by itself, but much more assisted by calcination, should destroy both the corrosive and emetic qualities of the butyrum, yea and the nature of the regulus too, into which the bezoar is reducible.— "Bezoar mineral and corrosive sublimate  $\mathfrak{aa}$   $\mathfrak{ziss}$ . distilled by a retort, yielded of a whitish acid spirit  $\mathfrak{zij}$ . sublim. corros. in the neck of the retort, as fine as ever  $\mathfrak{zss}$ : and at the bottom, of a yellow powder  $\mathfrak{zj}$ .  $\mathfrak{zj}$ , which is not reducible to a regulus." *Lem. Antimon.* p. 308. Hence bezoar mineral  $\mathfrak{zj}$ . contains of an acid spirit  $\mathfrak{zij}$ .

Bezoar mineral differs not in virtues from the antimony diaphoretic, if both are well washed: its effect depends on the superficially adhering acid.— "Antimonium diaphoreticum Crollii, seu bezoardicum minerale simplex, seu officinarum, magna est alexeterium saluberrimumque remedium bezoardicum, quod sudores provocando magnos effectus monstrat, in omnibus pestilentialibus, & venenatis affectionibus. Dosis a gr. vi. ad xii. vel ultra." *Schroder.* p. 416. "It is sudorific, and of the same use with ant. diaphoretic. Dose a gr. vi. ad xx." *Lem. Chym.* p. 358. "Ab Helmontio in peste, & morbis malignis & contagiosis commendatur, tanquam præst. ntissimum remedium diaphoreticum. Dosis a  $\mathfrak{ss}$ . ad  $\mathfrak{ss}$ ." *Geoff.* i. 232. The process is curious.

10. *Tinctura antimonii offic.* is a tincture of the sulphur of antimony, opened by a fixed salt, drawn by spirit of wine, and therefore may be many ways prepared. Mr. *Lemery* takes antimonii crudi ℥vj. and salis tartari ℥viij, melts the salt in a crucible, throws the powdered antimony by spoonfuls into it, keeps the mixture in fusion for half an hour, and then pours it into a mortar to cool. Thus it is reduced to a compact, brittle, easily relenting, yellow mass, of a salt and acrid taste, and foetid smell, weighing ℥xiß. He powders this mass, and in a matras adds sp. vini alcolisat. ad supereminentiam quatuor digitorum, which he digests warm for two days, or till the spirit becomes red; then he filters the tincture, and adds fresh spirit, to be digested as the former, on the residuum, which will give a tincture as good as the first. *Chym.* p. 366. He adds, that as good a tincture may be drawn from the scoræ of the regulus, managed the same way, and less acrid. *Ibid.* p. 368. Why less acrid? Mr. *Geoffroy* only translates *Lemery's* process.—Our Pharmacopœia takes powdered antimony and nitre āā ℥ij. and throws them paulatim into salis tartari ℥iv. in fusion in a crucible: these are to be fused together for half an hour, then powdered and digested eight days in sp. vini rectificati ℔ij. p. 49. It is one of *Le Mort's* processes, only he does not specify the quantity of the spirit, nor the time of digestion. Vide *Collect. Chym. Leid.* p. 54: where it is prepared also of antimony and salis tartari āā p. æ. without any nitre, which by consuming a great part of the sulphur, must here be prejudicial, unless (as in the preparation of the regulus) not the salt of tartar, but tartar itself was taken. Neither do I see the use of so much salt of tartar, though the nitre were omitted, and the *New London Dispensatory* keeps this proportion, as does the *Cod. Med.* also; a double quantity of fixed salt sufficing for a single quantity of antimony. — “℞ Salis cujusvis alcalini fixi ℔j, “antimonii ℔ß, spiritus vinosi rectificati m. ℔ij. Antimonium in pulve- “rem redactum salī admisce, & igne forti liquecant simul per horam; deinde “effunde, in pulverein redige, & spiritu affuso digere per 3 vel 4 dies; ad “extremum cola.” *Pharm. N. Lond.* 86. which however is much preferable to their old receipt, wherein were antim. p. j. salis tartari and nitri āā p. ij.

There is but a small part of the sulphur dissolved in the spirit. “E facibus “(a tinctura prima) residuis, sulphur auratum extrahi potest, in satis larga “quantitate, si in aqua coquantur, &c.” *Le Mort. Coll. Chym.* p. 55. “Sul- “phur auratum gives only a weak yellowish tincture to sp. vini, but a pretty “deep one (*rouge brune*) to ol. terebinthinæ.” Vide *Lem. Antimon.* p. 490. “Tincturæ antimon. ℥iv. contain of sulphur, in the form of an oil, gr. xxxviii.” Vide *Lem. Antimon.* p. 445—455. of which at least (the half, perhaps) two thirds are spirit; so that in tinct. ℥iv. there is not gr. xii. sulphuris; that is in tinct. gr. lxxx. there is sulphuris gr. i. Hence (as esteemed useless perhaps) there is no tinctura antimonii in the *Paris Dispensatory*, (except a compound one) prepared ex regulorum veneris, jovis, & antimonii āā ℥iv, melted, detonated, and fused with nitri and tartari āā ℥xviij, and extracted sp. v. rectificat. q. f. called *Lilium Paracelsi*, now in great esteem, though little worth. Vide *Cod. Med.* p. 224. and *Geoff.* i. p. 233. Dos. a gur. xx. ad c. It abounds in other preparations of this mineral of less value. *N. B.* In edit. 1748, there is one.



Although this tincture partakes of the virtues of the sulphur auratum, as well as of the fixed alkali; yet of neither in any high degree. It is commended in obstructions of the viscera, vapours, malignant fevers, small-pox, scurvy, itch, &c. The dose may be ʒj. or ij. as a stimulating diaphoretic and diuretic. “Cardiacum & sudoriferum est: venenis & putredini resistit: isterum curat: omnes obstructions tollit: vermes pellit: urinam ciet; & instar panaceæ est in omnibus febribus, & cachexia. Dosis a gut. iij. ad ʒj.” *Coll. Chym. Leid.* p. 55. “It is sudorific and hysteric, causes nausea and purges a little when given in a large dose, it may be used to provoke the menses, to remove obstructions, for hypochondriac melancholy, the itch, small-pox, malignant fevers, and scurvy. Dose a gut. iv. ad xx.” *Lem. Chym.* p. 366: who attributes its sudorific virtue to the small quantity of the emetic it contains, principally. “Sudores movet; rarissime nauseas excitat; nonnunquam alvum subducit, & urinas pellit. Commendatur in hystericis, & melancholibus affectibus, ad viscerum obstructions referendas, & in febribus malignis. Dosis a gut. iv. ad xx.” *Geoff. i.* p. 233.

But considering the small proportion of the sulphur contained in the tincture; together with the effect of alcalies and vinous spirits on the antimonial emetics, and the quantity in which it is commonly given; there appears some reason to doubt of its ever having purged any. “It operates by sweat and urine. . . . Its dose is from x. to l. or lx. drops.—Tincture of antimony, made with rectified sp. vini is in the least degree emetic.” *Huxam. l. c.* p. 334.

11. *Tartarus emeticus offic.* is the crystals of tartar impregnated with the metallic part of antimony, and thereby rendered emetic.

The process for making it is not difficult to such as understand the nature of the ingredients, though very differently related by authors. It may be made of any of the emetic preparations of antimony, decocted with the cream or crystals of tartar; but the hepar or crocus is commonly taken. Mr. *Lemery* orders hepatis antimonii ʒij. & crem. tart. ʒvij. to be decocted for eight or nine hours in about aquæ lbij. stirring all well with a wooden spatula, and adding fresh hot water from time to time as the first evaporates. The decoction, whilst boiling-hot, is to be put through a woollen or double linen cloth; and the strained liquor to be evaporated ad dimidias, and then suffered to cool and crystallize. If the liquor remaining after this crystallization be poured off and evaporated to a fourth part, and cooled, more crystals will be formed. And by repeating the evaporations and crystallizations, till all be got, there will be tartari emetici ʒivss. — He remarks, that if too much water be taken, the tartar will be too much weakened: that the nitrum fixum remaining in the hepar renders the tartar less indissoluble, than it would otherwise be: that if the liquor be not strained boiling hot nothing will pass but water, the cremor precipitating or congealing in the pot, or in the cloth: (why then repeated evaporations?) that the first crystallization contains almost all the tartar: that if in place of crystallizing, the decoction be evaporated to dryness, the remaining powder will be as good as the crystals, and somewhat more emetic: that what remains of the hepar is thrown away as useless: that a stronger tartar emetic may be made of the flores albi (made without any addition) p. i. and crystal. tartar. p. iv: and that tartar impregnated with any

preparation of antimony is as emetic as the preparation itself. *Vide* Chym. p. 693.

“Hepatis antimonii p. i. for crystall. tartar. p. iv. is the best proportion for making emetic tartar; for though hepat. p. i. be taken to crystal. p. ij. the emetic will be no stronger; yea weaker, by reason of the nitrum fixum in it.” *Vide Lem. Antimon.* p. 578. “If the tartar and hepar remaining in the filter be decocted afresh in water, and treated as above, some more tartar emetic may be got, and by reiterating this several times all the tartar may be made to pass the filter.” *Ibid.* p. 584. “The hepar remaining in the filter is as emetic as ever, and may be employed again the same way, though it is commonly thrown away.” *Ibid.* 585. Hence as well as from the nature of the ingredients, I think it evident that a much smaller proportion of antimony will suffice, and that more water ought to be taken, than he prescribes, *e. g.* hepatis p. i, crystal. tartar. p. viij, and aquæ p. xcvi. (or hepatis ʒj. cryst. ʒviij. aquæ lbviij.) will make a sufficiently strong emetic tartar.

“℞ Crystallorum tartari ʒiv, croci metallorum triti ʒj. Coquantur ex aquæ fontanæ quadruplo per horas decem, agitando spatulæ sæpius, & addendo plus aquæ ut opus erit. Solutionem calidam filtra & evapora ad siccitatem, aut ad pelliculam, ut concresecant crystalli.” *Ph. Edin.* (edit. 1722. p. 192. All the alteration made in the edition 1735 is aquæ octuplo, in place of quadruplo. But in the last edition 1744 it is, “℞ Cremoris tartari ʒiv. vitri antimonii triti ʒij. coque ex aquæ fontanæ lbiv. per horas decem, &c. ut supra,” p. 187. Which is preferable? The first certainly.

“Tartarus emeticus fit e cremoris tartari & croci metallorum āā q. s. quæ mediante calore, in aqua fontana dissolvatur. Filtratum liquorem (ad pelliculam, si crystallos desideramus, aliter) ad siccitatem evaporamus.” *Ph. Lond.* p. 147.

“℞ Croci antimon. loti, crystallor. tartari, singulorum lbss. aquæ M. lbij. Coque per horam dimidiam, deinde cola per chartam, & rite evaporatum sepono, quo crystalli formentur.” *Ph. Nov. Lond.* p. 63.

“℞ Hepatis antimonii cum scoris ʒij. cremoris tartari ʒviij. aquæ commun. q. s. bulliant in vase fictili per horas 8 vel 9. Coletur liquor, & ad siccitatem evaporetur, & erit tartarum emeticum solubile, vomitorium egregium a gr. iij. ad viij. Cæteris sibi præparationibus longe præstat,” &c. *Vide Geoff.* i. p. 221.

“℞ Vitrii antimonii, & hepatis ejus cum scoris āā lbss. crem. tartar. lbj. aq. q. s. &c.” *Cod. Med.* p. 252.

“Our chymists generally neglecting to wash the crocus metallorum, they are put to a great difficulty in preparing emetic tartar, and the medicine at last is rendered very precarious. To obviate this error as much as possible, here is added the washing of the crocus, in a separate article.” *Femb. Narr.* p. 60.

In the first draught of the committee there were only aquæ m. lbij. But why so much crocus? The *Paris Dispensat.* has vitri antimonii and croci metallorum āā lbss. cremoris tartari lbj. and boils in q. s. aquæ for twelve hours; then filtrates the liquor hot, and evaporates ad siccitatem. *Cod. Medicam.* p. 234.

℞ Croci



“ R Croci metallorum, cremoris tartar. āā p. æ. bulliant in aqua donec tartarus dissolvatur; solutio calida filtretur; (id novā affusā aqua toties repetatur, donec non amplius de tartaro appareat). Evaporetur donec cuticula conspiciatur, & ad crystallisandum reponatur, eruntque crystalli tartarus emeticus.” *Pb. Leiden* (ed. 1718.) p. 108. This is the most judicious recipe of them all if ( · ) inclusa be left out; though less crocus might do as well, and the emetic be never the weaker. Hence I infer, that there may be a considerable difference in the strength of emetic tartar; and therefore though *Messrs. Lemery* (*Antimon.* p. 578.) and *Geoffroy*, give it by far the preference, as an emetic, to all other preparations of antimony, yet the emetic wine is more certain, as to the dose, unless we know the preparation.

What proportion bears the antimony to the tartar in this preparation? Mr. *Geoffroy* by reduction obtained from 3j. of the weakest tartar emetic, from gr. xxv. to 5j. gr. xv. of regulus; and from an ounce of such as was of a middling strength 5iß, while the most violent yielded him 3ij. gr. x. (or gr. xxxiii.) Vide *Mém. Acad. R. an.* 1734. According to him therefore gr. v. of the middling tartar emetic contain almost gr. i. of the regulus. He adds, “ The nearer the preparations of antimony, on which the solution of cream of tartar is boiled, are to the form of a regulus or a glass, the more violent is the emetic tartar; because the vegetable acid of the tartar acts then more immediately upon the emetic part of the antimony, and dissolves more of it.” Vide *Macq. Chym.* (1758.) p. 298. vol. ii. Is the regulus here preferable to the glass? or the glass to the calx? Hence however it is evident that there is great difference between the emetic tartars, as to strength; and one grain of one emetic tartar may be as strong as four or five grains of another.

Tartar emetic is now the most common antimonial vomit. Dose to gr. viii. Gr. i. or ii. are an excellent stimulus to ipecacuan, as also to senna, manna or such like cathartics, encreasing the emetic quality of the one, and the purgative only of the latter without nausea.

“ Si manna stimulo egeat, senna aut rhabarbarum ei admisceatur: potentius adhuc acuitur, & efficacius tartari stibiati granis aliquot, in plures doses distributis, uno pro singula dosi. Sic absque ulla molestia, nausea, vomitione, aut torminibus, copiosa feri biliosi evacuatio promovebitur.” *Geoff.* ii. 597. “ Tartarum emeticum cæteris stibii præparationibus emeticis, longe præstat. Facile enim sub quacunque forma exhiberi potest; & insuper cum ejus vis & dosis facile dignoscuntur, rectius ad medici nutum, pro ægrotantis viribus, aut morbi urgentia, augeri aut minui potest; cum e contra vinum majori vel minori vi emetica donetur inæqualiter, pro majori vel minori aciditate sua vel maturitate.” *Geoff.* i. p. 221. But is the tartar prepared with and without the scorix, of the hepar, and of the washed crocus, of the same strength? Does not wine extract the emetic virtue of the crocus as well as vinegar? Mr. *Lemery* says better.

“ In hepate antimonii conficiendo quidam antimonio & nitro sal marinum decrepitatum addunt, & sic conficiunt magnesiā opalinā, vel rubinā antimonii, vi emetica longe debiliore, quam hepar antimonii donatum.” *Geoff.* i. p. 222.

12. *Vinum emeticum offic.* is an infusion of the crocus metallorum in wine, whereby it is rendered strongly emetic, though neither colour nor taste be sensibly

sensibly altered. — The crocus metallorum ad ℥j. infused about 24 hours in vini Hispanici ℔ij, shaking it now and then at the beginning, and then suffering it to subside, makes the wine which (though filtered through paper, as clear as ever, and not at all tintured, or endued with any foreign taste) is a strong emetic. Our Dispensatory orders for vini Hispanici ℔i. croci metallor. ℥i: the *Pharm. Vet. Lond.* vini Hispanici ℔℔. for an ounce of the crocus, calling it vinum benedictum: but the *New Lond. Dispensatory* has “℞ Croci antimonii loti ℥j. vini albi m. sesquilibrium. Macera sine calore, & per chartam cola,” for the vinum antimoniale, p. 82. “The straining through paper is here a necessary circumstance, that no part of the antimony may be left floating in the wine, and be given in substance, when a tincture of it is only intended.” *Pemb. Narr.* p. 263. Though since the crocus soon enough subsides, and gives no tincture, the remark is trifling; and it would have been of more consequence to determine how long the maceration was to be continued; and how often infusions of the same crocus might be made. Mr. *Lemery* allows 24 hours for the first infusion, and two or three days for the second, (vide *Chym.* 314. and 317.) and that the wine may be nine times on the same crocus ℥j, and be still emetic. For it is to be observed,

1. That wine may be impregnated with the emetic quality of the antimony only to a certain degree; so that croci ℥j. will make vini ℔ij. (which is Mr. *Lemery's* proportion) as emetic as vini ℔i. (which is Mr. *Geoffroy's*, &c.) The dose therefore is to be regulated by the quantity of wine to be given, not by the quantity of crocus infused in it. “Vini emetici ℥j. is as strong a dose as tartar emetici gr. viii.” According to *Lem. Antimon.* p. 566:

2. That although the emetic virtue of the crocus is certainly gradually impaired, and at length exhausted by repeated infusions in fresh wine; yet it is not a little surprising, that it should be able so long to impart that quality as it does, without a greater diminution of its weight, or of its effects. That something is extracted by every infusion cannot be doubted, and Mr. *Lemery's* experiments prove it. — “Crocus metallorum ℔℔. makes vini ℥xvi. as strongly emetic as croci ℥j. would do. The colour of the wine is not changed by the crocus. The smell is somewhat sulphureous and disagreeable; but there is nothing singular in the taste. . . After nine infusions croci metallorum ℥j. in vini ℥xvi, I observed the nine became gradually weaker: after 24 infusions vini ℥j. operated no more than the ℥j. did at first: after 50 infusions, though longer than formerly digested, vini ℥iv. had scarcely the effect of ℥j. I reiterated the infusions to the 62d time, when the wine did not vomit, causing nausea only. Then I dried and weighed the remaining crocus, which was a red powder weighing 3v℔. so 3ij℔. were dissolved by these infusions. Of this powder gr. vi. vomited a strong person gently. The remainder calcined for about an hour, in a small fire, and infused a-new in white wine as before, rendered it as emetic as the first infusions mentioned above.” So that in ℥j. vini there was not gr. ℔. croci metallorum, or hepatitis. — “White wine is commonly taken, but I have made it of pale wine, also red wine, and they answered every way as well as the white. I tried also Spanish wine, Muscadine wine, vinous hydromel; and they all became emetic, but not so strongly as the common white wine. I infused croci metallor. ℔ij. in musti ℔xl. suffered it to ferment for two months, and had a wine rather



“ rather more emetic than the common. I made also cyder, perry, and beer  
 “ emetic by infusing in them crocus metallorum. The perry was as strong as  
 “ the wine, but the cyder and beer much weaker. The sweet cyder does not  
 “ receive near so much of the emetic virtue, as the strong rough tasted cyder,  
 “ as containing more tartar. I infused and digested for three days separately,  
 “ several portions of crocus metallorum in different acid liquors, as verjuice,  
 “ vinegar, juice of barberries, of quinces, pomgranates, gooseberries: all be-  
 “ came emetic, but less so than the wine. Distilled vinegar ℥v. with croci  
 “ met. ℥j, digested warm for 24 hours, was not tintured, neither purged  
 “ any way: though the crocus filtered and dried was diminished gr. xxx. part  
 “ of the fixed nitre in the crocus being probably dissolved by the vinegar. It  
 “ contained none of the sulphur.—I poured into separate portions of emetic  
 “ wine spiritus salis ammoniaci, and oleum tartari p. d. Both became muddy,  
 “ whitish, and precipitated some particles of matter, which pure wine did not:  
 “ these mixtures filtered and given to ℥j. did not vomit, but purged gently.  
 “ I distilled vini emetici ℥lxxiv. in a glass alembic, and had liquor a little  
 “ troubled and whitish, of a disagreeable sulphureous smell, and of an ill,  
 “ though of a vinous taste. I gave one person ℥jss. of it: it did not vomit,  
 “ but caused nausea and belchings. I made another person take ℥iij. of it,  
 “ and it only raised a pretty plentiful sweat. This liquor kept two months,  
 “ became clear, and given then in the same quantities, had no sensible effect.”  
 Vide *Lem. Antimon.* p. 566—577. —Hence it appears that there may be about  
 gr. β. of the crocus dissolved in vini emetici ℥j. But since wine can dissolve  
 so much, and the crocus after 62 infusions is still emetic, how comes it to pass,  
 that the last infusions are so weak? The wine may, by degrees, clog or fix  
 the crocus. But then why is it emetic at all? For since vini ℥j. requires  
 croci gr. β. or thereabouts to saturate it, should not even the 50th infusion,  
 in time dissolve the same proportion of the crocus? Perhaps it would, and  
 yet the former infusions may have weakened its emetic stimulus. I observe,

3. That though any wine will extract a sufficiently strong emetic quality  
 from any of the emetic preparations of antimony: yet we commonly take  
 Spanish wine, or sherry, because it keeps best; and the crocus metallorum,  
 because one of the safest, as well as one of the most efficacious of these pre-  
 parations. I have made good emetic wine with very rich Canary: whether  
 old, strong or rough wines would draw more of the emetic virtue, *e. g.* Rhenish  
 wine, I have not tried. But if the crocus makes wine more emetic than it  
 does vinegar, (as Mr. *Lemery* asserts) one would think the old rough wines  
 little better than the new and sweet for this process, and that it will commu-  
 nicate more of its virtue to wine than it does to tartar. However,

Antimonial wine is a powerful emetic, and is nothing inferior to emetic tartar,  
 if given from ℥β. to ℥jss. (seldom to ℥ij.) and as a stimulus to cathartics to ℥β.  
 —“ The dose is a ℥ij. ad ℥j. for grown persons.” *Quincy*, p. 260. “ From  
 “ ℥β. ad ℥iij.” *Lem. Chym.* p. 314. But since according to him vini ℥j. is  
 equivalent to tartar. gr. viij, and his greatest dose of tart. emet. is gr. xij,  
 the greatest dose of the wine should be ℥jss. only. “ Vinum supernatans lim-  
 “ pidum exhibeatur ad vomitum promovendum ab ℥j. ad ℥iij. In enemate  
 “ nonnunquam turbatur, & prescribitur ab ℥ij. ad iv.” *Geoff.* i. 221.

Antimo-

“Antimonial wine, in the place where I then lived, being in great vogue, not only as an emetic, but also as a purifier of the blood, more than 30 years ago, to make trial of its effects, I infused crocus metallorum in rich Canary wine, and after it had stood some days, and was sufficiently fine, I took of it, in a glass of small ale every morning for ten or fourteen days, as I remember, beginning with a very small quantity, about ʒβ, and increasing it gradually till I took a full spoonful or ʒβ. at a time. I observed no effect of it for several days; but at length it purged a little, and at last occasioned nausea. I had no thought of a diuretic virtue in it, so cannot tell whether it operated that way or not; though by the effects of the flores, and vitrum antimonii on dogs, related by *Wepfer* (*De Cicuta Aquat.* p. 249 & seq.) it is not improbable that it did. I took also once and again of this wine cochl. iii, and at one time iv, which, as I am difficultly moved, vomited me but a little, though they purged me very plentifully always; so that I had sometimes upwards of thirty very ferous stools: yet these were without griping, and I was not in the least fatigued by them. Hence I concluded that if antimonial emetics could be made to operate only downwards they would prove powerful hydragogues, and be of use in dropsies, where vomiting is not always so safe, as purging: and experience confirmed the conjecture. For I found that an infusion of senna with manna or syrup of buckthorn, and vini emetici ʒβ. very plentifully evacuated water downwards, without causing sickness, or the smallest inclination to vomit; of which we had a notable instance in the infirmary very lately.

Now since it is evident (α) that antimony consists of common sulphur, and a metallic part or regulus; (β) that the metallic part, though not corrosive, is violently emetic; (γ) that as this emetic quality of the regulus can be considerably increased, so also diminished, yea destroyed, by fire, acids, salts; (δ) that when the metallic part is either destroyed, or so clogged or altered as to be intirely divested of its emetic stimulus, it has no sensible effects, but becomes a meer unactive calx.—Does it not evidently follow that all the virtues of the antimonial preparations, as antimonial (or not rendered caustic by acids) depend on this stimulus, and on the sulphur? And that in order to explain their operation, we need not have recourse to its imaginary salts, and no less imaginary rarification and expansion of its sulphur, much insisted on by some. Vide *Geoff.* i. 235.

“Vomitiones quoque hoc animal (canis) monstrasse homini videtur.” *Plin.* l. 29. c. 4. p. 722. But the usefulness of vomiting, and some ways of procuring it, nature itself teaches. Hence it is as ancient a practice, and as universally approved of, as any in medicine. *Hippocrates* frequently recommends it, and that to prevent, as well as to cure diseases. The vomits he ordered were not all of the milder kind; the white hellebore, though more dangerous than mercurius vitæ, he used not only in maniacal and melancholical cases, but even in phthisis, leucophlegmatia, cholera, &c. yea vomiting was practised even by the methodists, who condemned purging altogether, and scarcely would allow of a sharp clyster. Vide *Le Clerc's Hist.* p. 472. Many have been surprised to see how much the sick are sometimes relieved by a vomit, even when nothing appeared to be thrown up, save the water, or what was drunk with it, but if we consider the immediate causes and consequences of vomiting, as the sickness, nausea, spasmodic contractions of the stomach, diaphragm, abdomen,



men, &c. the compression of the viscera, the accelerated velocity of the fluids, increased fluid secretions, repeated shocks given to the whole animal œconomy, and the like, we may easily account for the most wonderful effects of this evacuation, without having recourse to the specific virtues of any particular emetic, however much they may differ otherwise as well as in the violence and duration of the irritating stimulus. For as vomiting can be provoked by unusual motion, by tickling the fauces, by overcharging the stomach, by external applications, &c. as well as by emetics taken into the stomach, so the stomach may be very differently affected by different emetics, according as they differ in their nature and qualities. Thus the effects of white mustard, white hellebore, ipecacuan, vitriol, turbith, emetic wine used as vomitories certainly differ much; tho' the advantage or benefit of vomiting belongs to all. Wherein they differ is an inquiry too long for this discourse. But with relation to vomiting in general, there is one advantage peculiar to it which I cannot omit. Suppose a person has taken poison, or the juices of the stomach, liver, or pancreas should be by infection or any other way vitiated, vomiting is the most effectual, and often the only remedy. For although purgatives might carry them as well out of the stomach and duodenum also, (which yet may be denied) before they can be expelled the body they must pass through the long intestinal tube; so that it is scarce possible but some part of them will enter the lacteals, infect the mass of blood, and create diseases, which vomiting might have prevented but cannot cure. — “*Emetica prudenter exhibita, morbis, qui, in duodeno & prima regione sedem fixerunt, unice auxiliantur; sunt enim generosa, & valida remedia, quorum virtus fere omnibus reliquis medicamentis præferenda. Et si medicus solidi quid præstare potest, certe emeticis id præstare potest. Sæpe enim unico remedio, magnus tollitur in principio morbus; & qui emeticis non utitur, nec iis recte uti novit, ille, nostra quidem sententia, veræ praxeos ignarus est. Opus est vero emeticis, si ventriculus & duodenum impuris humoribus scatent, ut statim in limine materia peccans ejiciatur. Perniciosum enim est, per tam longum intestinorum canalem, & per inferiora eam evehere, cum ad sanguinis massam facile pertransire possit. Et quod maximum est, purgantia pleraque materiam in ventriculo & duodeno stagnantem non aggrediuntur, nec comovoent, sed in hisce partibus parum vim suam excercent, magis intestina tenuia excitando, &c.*” Vide *F. Hoffman. (in Dissertation. De Duodeno, sede plurimorum Morb. p. 75. where are reasons why he justly prefers liquid emetics to such as are solid.)* — But, to conclude, it is still to be remembered that vomiting is a violent remedy, and not to be prescribed at random, or without duly considering both the circumstances of the patient, and nature of the emetic; in what quantity it is to be administered; and how its operation is to be quickened, or moderated, continued or stopt, as need requires, and best answers the intention. — Antimonial emetics need no stimulus, frequently exceed, and more commonly want a frænum. If this should happen, *Sydenham* directs to use (opium or) laudanum liquidum; *Geoffroy* spirit of sulphur or of vitriol. The effect of laudanum I have often experienced, it never failed me: the spirits perhaps may be as successful, I never tried them. Mixing salt with the water they drink is said to determine the operation downwards; and some think a draught of cold water sufficient to settle the stomach: I can recommend neither. — “*Si ex quacunque*  
sibii

“stibii præparati dosi, vomitus vehementer sit, aut diuturnior, spiritus sulphuris vel vitrioli guttæ aliquot, in aquæ vel ptisanæ cyatho, ad gratam aciditatem exhibeantur. Statim stibii vis emetica infringitur, & vomitus ab hocce remedio, tutius quam ab opio, sedatur.” *Geoff.* i. 239.

## LECTURE XXXV.

## BISMUTHUM.

## SECT. I.

**B**ismuthum, *Marcasita offic.* Bismuthum, *Aldrov. Mus. Met.* 161. Plumbum cinereum (cujus nomenclatio Agricolæ tribuitur; bismuthum enim vocant metallici, macrasitam argenteam Cæsalpinus, Germani bismut.) *Worm. Mus.* 125. Bismuthum, *Dale* 34. *Geoff.* i. 239. Tin-glass, Bismuth, or Marcasite. — This is a hard, brittle, shining demi-metal, composed as it were of thin lamellæ, made up into little squares (cubes rather or dice) of a yellowish-white colour. — “Bismuthum constat, si frangitur, ex tessulis, hæque iterum ex lamellis sive mutuè appositis; zinco magis fragile; cæterum externa facie parum differens, nisi quod non cærulescat, sed potius levissimè fulvo splendore conspicuum sit.” *Cramer.* i. 8.

The weight of bismuth is to that of water as 9375, 9875, 9700, 9550, 7951, to 1000, according to *Phil. Trans.* No. 488. — It melts with a less heat than tin itself; easily mixes with metals, whitens them, and destroys their ductility. It emits copious fumes and loses much in the fire, yea may all be driven off in vapour. “Perquam notatu dignum est, quod bismuthum cum plumbo, stanno, vel argento fusum, hæc ita disponat, ut dein cum mercurio amalgamata, longe magis attenuentur, ac pro longe majore parte, per alutam, una cum mercurio, transeant, quam si bismuthum abfuisse.” Vide *Cramer.* i. 36.

Some say bismuth is found in the silver-mines in England, or extracted from an impure tin-ore fused with tartar and nitre; as *Wormius*, *Lemery*, *Mangetus.* *Bib. Pb.* i. 418. “In Anglia & Misnia reperitur in venis argentariis.” *Charlet. Foss.* 49. *Merret* and *Dale* bring it from Germany; others confound it with zink; and others make it all factitious, composed of tin, tartar, and arsenic. But it is a natural demi-metal, found in ore, and refined by fusion as easily as antimony. — “Bismuthum tam purum hæret aliquando in minera sua inclusum, ut pro eo inde eliciendo, præter rudem comminutionem, nulla præparatione ulteriore opus sit. Minera ejus omnis, docenti id analysi chemica, per arsenicum in mineræ statum redacta est; id enim per sublimationem inde prodit. Est & in hac minera eadem illa terra, vitra cæruleo tingens colore, de qua sub cobalto mentionem fecimus.” *Cramer.* i. 234. where is a scholion, and the manner of preparing the confectio zaffræ, and of the fine blue smaltum; and in tom. ii. p. 233, is the processus eliquationis bismuthi e minera. — “In Misnia & Bohemia tantummodo bismuthi fodinæ reperiuntur.” *Geoff.* i. 240. Mr. *Helot* says that he found, by essay, that one of his bismuth



mith ores contained sulphuris bituminosi p. i, arsenici p. ix, fluor. & smalti circiter p. iij, & bismuthi p. iij. *Mem. Acad. R.* 1737. p. 324, &c. — *N. B.*  
 “ Bismuthum eodem modo, ac regulus antimonii sese habet, ubi cum sulphure  
 “ ad ignem colliguescit: quod tamen paulo tardius fit. Nascitur autem tum  
 “ inde massa antimonio similis, colore dilute griseo, minimis spiculis nitidissi-  
 “ mis, sese decussantibus constans, admodum fragilis.” *Cramer.* i. p. 64.

## S E C T. II.

Bismuth is commonly reckoned an arsenical substance, and as such safe neither inwardly nor outwardly, being worse than lead. But perhaps without sufficient reason; it seeming to partake more of the nature of antimony, than of either of these, or of tin. However it is very little used, if it be not, as a cosmetic, reduced to flores, or a magisterium.

“ *Marcasitæ seu bismuthi vires recremento plumbi respondent. Usus rarissimus & non nisi externus. Præp.* 1. Calcinatio, unde magisterium. 2. “ *Distillatio & sublimatio, unde oleum sive liquor, sal, & flores.* 3. *Extractio.*” *Schroder.* p. 459, 60. According to whom bismuth, calcined till its impure sulphur is consumed, gives a cathartic virtue to vinegar, and to the cremor tartari; of which last he says, “ *Serum purgat potentissime, hydropicos ad miraculum juvat.*” And adds, “ *Infusio simplex marcasitæ ʒj. in vini albi ʒv. adhuc fortius hydropicos evacuit instar antimonii.*” As for the wonders of the aqua marcasitæ, he says, “ *Fides sit penes expertum.*” To these if we add the affinity that is between bismuth and the regulus antimonii; that the arsenic is probably driven away in fusion, “ *Arsenicum paucum si inest ab aere igneque libero dissipatur,*” (*Cramer.* ii. p. 235.) it will appear not improbable that bismuth is more an antimonial than arsenical substance; though according to Mr. *Geoffroy* by the fire it may be reduced to a calx, to litharge, and to glass; like lead it vitrifies imperfect metals; and gold and silver may be copelled by it. Vide *Macquer*, (*Ch. Præd.* i. p. 371.) who p. 375. gives the preparation of M. *Hellot*’s sympathetic ink. But Mr. *Pott* shews a remarkable difference betwixt lead and bismuth. *Ibid.* 382. A small quantity of a solution of sea-salt making no precipitation of a solution of bismuth in the acid of nitre; and the precipitate by a large quantity of sea-salt being fusible by no heat, having none of the properties of a bismuth cornium. But we yet know so little of its effects, and consequently of its dose, that it would be rashness to give it inwardly. Time may make greater discoveries concerning it.

Magisterium bismuthi is bismuth dissolved in aq. fortis, and precipitated by salted water into a white powder. “ *Bismuthi ʒj. dissolved in sp. nitri ʒiij: precipitated with aquæ ʒv. or vi. wherein salis marini ʒß. is dissolved, the water poured off, and the powder washed well, will weigh when dry ʒj. ʒj: which is the magistery called Blanc d’Espagne, a cosmetic to whiten the face; mixed with a pomatum, or diluted with aqua fl. lilii aut fabarum. Wig-makers also beautify their hair with it. If the magistery in which the water was precipitated, be filtered, and writed with a new pen on white paper, the writing will not appear; but if after it is dry, it is lightly rubbed with (a little) cotton moistened with a decoction of the scorixæ of antimony,*

“ it will become very black.” *Lem. Chym.* 137. Mr. *Hellet* has two papers on sympathetic inks. *Mem. Acad. R.* 1737. “ *Magisterio quoque tonfores ad comarum ascititarum capillamenta cinereo colore pingenda, sæpius utuntur.*” *Geoff.* i. 240.

Flores bismuthi are some parts of it attenuated and sublimed with sal ammoniac. — “ Bismuth calcined as they calcine lead, p. i. and salis ammoniaci p. ij. sublimed, give flowers, which can be sublimed in water, and may be precipitated by sp. salis ammoniaci, or ol. tartari.” *Lem. Chym.* 137. “ Quidam ex bismutho parant flores, quos diaphoreticos asserunt. Sed plerimi hujus mineralis usum internum reformidant, ob arsenicales quasdam partes in eo contentas.” *Geoff.* i. 240.

## L A P I S C A L A M I N A R I S.

### S E C T. I.

*Lapis Calaminaris offic. Dale* 39. *Lapis calaminaris. Cadmia lapidosa. Cadmia metalli expers. Schroder.* 354. *Cadmia fossilis, alias Lapis calaminaris: Worm.* 128. *Cadmia fossilis Agricolaë. Lapis calaminaris offic. Geoff.* i. 206. Calamy, or Calaminar-stone, is a metallic mineral, neither hard, nor very heavy, of different colours and consistences, but pretty friable, without any remarkable taste or smell, found in mines, in England (in Mendip hills, in Somersetshire) France, Germany, &c.

It has no regular figure, texture nor colour, being sometimes more soft and spongy, sometimes more hard and solid: some of it is whitish, some yellowish, reddish, &c. and some of several colours. In the fire it gives the flame a greenish colour, and emits plenty of white fumes, and by sublimation such flowers as has been observed above. (*Vide Pompholix.*) — “ *Lapis calaminaris, alias Cadmia nativa, ruditer diffractus, ignique validiori injectus, mox tingit flammam colore viridi elegantissimo, instar zinci; fumumque album, densum, copiosum exhalat, qui tamen nec sulphur nec arsenicum redolet, sed odoris est mitioris, singularis, summopere saltem adstringentis; atque in flores levissimos, primum cærulescentes; dein gryseos, albos, condensatur. Caveatur modo ne ejusmodi experimentum fiat talibus lapidis calaminaris frustis, quæ pyrite flavo, sulphureo, vel albo arsenicali, aut etiam galena plumbi stipata sunt: solent enim istiusmodi quandoque lapidi huic sociata esse. Præter volatilem partem mox descriptam, insuper in lapide calaminari plurimum ferri adest, tum & terra non-metallica satis copiosa. Ex lapide calaminari quidem, nec sola ignis vi, nec additis vulgaribus fluxibus reducentibus, unquam produci zincum potest. Attamen florum illius, cum floribus zinci convenientia; mutatio rubri cupri coloris in flavum aureum, quæ ut a lapide calaminari, sic a zinco perficitur; denique productio ipsius zinci ex lapide calaminari, variis encheiresibus obtinenda, illum inter zinci mineras reponere jubent.*” *Cramer.* i. 239. “ *Quidem lapis calaminaris, plumbi & ferri plurimum ex se reduci patitur, unde pallore & fragilitate cuprum corrumpitur, tametsi majore pondere augeatur. Quin & lapidis hujus quædam species ustulationem præcedentem postulant, qua magna*”  
 I  
 “ ejus



“ ejus pars dissipari debet, antequam ad hunc usum aptus est; aliæ vero  
 “ statim in hunc usum trahi possunt.” Vide *Cramer*. ii. 247. The pro-  
 cessus is cupri cum minera zinci cementatio & fusio. But of late M. *Marg-  
 raff*, in the *Mem. Acad. of Berlin*, has given the process whereby zinc may  
 be extracted from lap. calaminaris by a kind of sublimation, to wit, in a  
 retort. Vide *Macquer Ch. Prat.* i. p. 332, who says the greatest part of the  
 zinc we have is got from a refractory ore of Goslar, which furnishes at the  
 same time lead, zinc and cadmia fornacum. (Vide l. c.) By the same process  
 M. *Margraff* got zinc out of the cadmia fornacum, tutia (which is a kind of  
 it), & du præcipite du vitriol blanc. *Ib.* p. 386.

“ Lapis calaminaris, calamie, ex collibus Mindippensibus, &c. Ex hoc la-  
 pide cadmia botrytis, placites, &c.” *Merret Pin.* 211. Vide *Worm*. 128.  
*Lem. Dict.* 99. *Geoff.* i. 206. — “ Hæc cadmia (i. e. lap. calam.) veteribus  
 “ Græcis ignota fuisse videtur; saltem ad usum medicum non adhibebatur;  
 “ cum a Dioscoride & Galeno nulla ejus facta fuerit mentio.” *Geoff.* i. 206.  
 “ Cæterum absque fornace, in cupro cadmia invenitur, ac jure quispiam illam  
 “ lapidem nuncupet. Itaque in solis paucissimum etiam reliquum erat cad-  
 “ miæ quæ in fornacibus provenit, quo tempore ego in insula peregrinabar.  
 “ Verum lapides qui in montibus & rivis reperiabantur, a metallis pfecto  
 “ acceptos, in Asiam Italiamque portavi ad amicos, a quibus summum ini-  
 “ bam gratiam, quod se vel maximum munus accipisse dicerent, & quæ alia  
 “ omni cadmia multo esset præstantior. Et talem certe merito quis lapido-  
 “ sam vocet cadmiani.” *Galen 9. Simplic.* p. 69. E. “ Conficitur & cadmia  
 “ cremato lapide cui pyritæ cognomen est e monte qui solis incumbit eruto.  
 “ . . . Nec desunt qui cadmiam in lapidum fodinis invenire tradant; decepti  
 “ non prava lapidum quorundam cum cadmia similitudine.” *Dioscorid.* 5.  
 c. 84. p. 35. This cadmia lapidosa *Fallopious* thinks is our lapis calaminaris.  
 Vide *Fallop. Fossil.* c. 2. p. 306. And it is certain the ancients mention ori-  
 chalcum. *Virgil (Æneid.* l. 12. v. 87.) sic canit,

“ Ipse dehinc auro squalentem alboque orichalco  
 “ Circumdat loricam humeris. . . .”

Et *Horatius (Art. Poet.* v. 202.) sic,

“ Tibia non, ut nunc, orichalco vincta, tubæque  
 “ Aemula . . . . .”

“ Orichalcum omnibus metallis pretiosius fuit,” says *Servius* in *Æn.* 12.  
 Was it prepared with this, or the cadmia fornacum?

## S E C T. II.

It agrees with tutia in virtues, and is used the same way, to dry and cica-  
 trize; and after the same manner it is prepared. It is an ingredient in the  
 unguentum desiccativum rubrum, and ung. tutiæ; and gives a name to a third,  
 viz. ung. e lapide calaminari.

“Siccatur leniter, extergitur, adstringitur, ulcera carne replet, cicatricem inducit. Adhibetur solum externe, creberrimoque usu infantum excoriationibus excitationis ergo inspergitur. . . Magisterium lapidis calaminaris S. Cloff. solvitur in part. x. spiritus sal. com. deinde præcipitatur pulvis rubeus cum oleo tartari more vulgari, & dulcoratur sæpius aqua. Evacuatur per vomitum & secessum, mitius quam antimonium præparatum.” *Schroder. p. 354.*

This stone containing not only zinc and iron, but sometimes also lead, arsenic, &c. one piece of it may be of a very different nature from another, and have different effects even outwardly applied. That certainly which answers best in preparing the yellow brass is the safest. Hence the *New Lond. Pharm.* directs the “lapis calaminaris ab iis, qui orichalcum conficiunt, calcinatus,” p. 22. *i. e.* “Calamy first calcined for the use of the makers of brass.” *Pembert. Disp. 145.* I could observe little taste in what I tried; only it appeared a little rough or vitriolic, though but very little so. It made no ebullition or visible effervescence in the spiritus vitrioli. Will spirit. salis dissolve it? — “Est naturæ venereæ & cum acidis sit magis austerum.” *Nucl. Belg. 160.* But neither of these appear evident to me. However I think some degree of astringency is the quality that most commonly belongs to it. It is much commended as a drying cicatrificans. Hence we have the following, “Ung. e lap. calamin. R Ceræ flavæ ℥xviij. liquecat in ol. olivarum ℔ij. Dein sensim insperge lap. calamin. ℥x℔. M. agitando donec frigescat unguentum.” *Pb. Ed. p. 125.* (Will not this be a thick cerate, or a soft plaster?) — “And this “Ceratum epuloticum: R Ol. olivarum m. ℔j. ceræ flavæ lapidis calaminaris ppt. aa ℔℔. Liquefiat cera cum oleo, & simul ac nix ura lentescere incipit, insperge lapidem calaminarem, & bene move, donec ceratum penitus refrigerit.” *Pb. Lond. N. p. 150.* This is thinner than the ointment.

“Cadmia hæc nostra, calamina vulgo appellata, est præstantissima ad affectus oculorum, etiam non abluta; unde cum essem Mediolani, in eo loco ubi terunt & cribrant hanc cadmiam, aderat senex quidam, ex iis, qui cribrabant, qui dicebat quod antequam illam artem execeret, semper erat passus affectus oculorum, sed ex quo ceperat materiam illam cribrare, sanus factus erat, ita ut nunquam amplius oculorum affectibus fuerit vexatus.” *Fallop. Foss. c. 12. p. 306.* Would not a soft ointment made of axunge and pptd. lap. calaminaris be as good as the ung. tutiæ *Pharm. Lond. 147?*

## L A P I S H Æ M A T I T E S.

### S E C T. I.

Hæmatites, vel Lapis Hæmatites *offic.* Hæmatites, *De Boot. 386. De Laër. 122. Worm. Mus. 64. Aldrov. Mus. Met. 646. Dale 31.* Lapis Hæmatites *offic. Geoff. i. 196.* The Hæmatite or Blood-stone — is a hard heavy metallic mineral, or iron ore, of a very fine grain, of a dark-red colour, and of an earthy subastringent taste.

“Hæmatites altera parte gibbosus, fornicatus, altera vero angulosus, recte lineus, planis versus unum punctum tendentibus conspicuus, fere hinc  
“pyrami-



“pyramidem refert irregularem, id quod si frangitur maxime quidem apparet. Superficies ejus exterior, rubigine prius deterfa, fatis est polita; interior vero, amianthi instar, striis distincta convergentibus. Transverso autem ad strias suas ductu diffractus chalybis elatere mollius indurati fracturam æmulatur. Colore gaudet obscure rubicundo, pondere magno, duritie ingenti. Cæterum meracissima fere ferri est minera, pauco valde arsenico mixta. Videtur autem refractarius reddi per terram apyram forte in eo latentem. Summo igne regulus ferri albus, fragilis, difficulter ad malliabilitatem perducendus, inde eliquatur.” *Cramer*. i. 200. Hæmatites modo superficiem habet Angulosam, ut in Hispanico observatur, modo uvarum in modum concreta videtur, unde hæm. botrytes nuncupatur, qualis in Hercynia sylva effoditur; nonnunquam intestinorum circumvolutiones, vel cerebri exteriorum rem formam refert, cujus figura ab Aldrovando, & Ferrante imperato eliganter adumbratur.” *Geoff*. i. 197. Pondus ad aquam est ut 4360 to 1000, *Pb. Transf.*

It is found in its own proper mines, in iron-mines, among the rubrica, &c. in Germany, Bohemia, Ilva, Spain, &c. “In quocunque autem loco nascitur ibidem quoque faxes, & terra ejusdem coloris observantur.” *Geoff*. i. p. 197.

The ancients, both Greek and Latin, make mention of an hematites, but whether this is it I think with *Mathioli* and *Schroder* there is good reason to doubt. “Densa quoque hæmatites, ipsa autem arida, aut secundum nomen, *ὡς αἱματὶ ξηρὸν πιπληγότες*, veluti sicco sanguine concreta.” *Theoph. de Lapid.* 14. “Hæmatites optimus habetur fragilis, & saturato colore sanguinis seu niger (rather multus, seu niger, *καὶ κατακρῆς ἦτοι μέλας*) in se durus & æquabilis, nulla forde admixta, aut zonis . . . fiunt & ex eo collyria . . . adversus oculorum affectus . . . Adulterant schisto . . . Adulteratus per venarum ductus in rectum diffringitur, at hæmatites non item. Adulterati color floridus, hæmatitæ saturationis cinnabarin imitantur. Invenitur & hæmatites in rubrica sinopica, & in magnete lapide vehementer usto paratur, at nativus in Ægypto effoditur.” *Dioscorid.* l. 5. c. 144. p. 384. & *Plin.* l. 36. c. 20. p. 874. “Sotacus (says he) e vetustissimis autoribus, quinque genera hæmatitarum tradit, præter magnetem.” &c. Some of the French authors call the rubrica a hematite. Vide *Lem. Diæ.* 249; *Savary Diæ.* ii. 31. & *Cartheuser* ii. p. 640. who says little about it, and seems to know less.

## S E C T. II.

It is astringent; and much commended internally in hæmorrhages, as spitting or vomiting of blood, bloody urine, fluxu mensium aut lochiorum nimio, &c. ulcers of the lungs, diarrhœas, gonorrhœas, incontinentia urinæ, &c. and externally for sore eyes, but perhaps more than it deserves when given in substance.

“Refrigerat, exsiccat, adstringit, glutinat, adeoque convenit ulceribus oculorum & pulmonum, oculis lachrimantibus, sanguinis expuitioni medetur; profluvia v. g. hæmorrhagiam uteri, albi, &c. compescit. Datur pollen interne a ðj. ad ðiv. Externe modis variis adhiberi potest N. 1. Hæma-  
“ tites

“ tites per retortam exhibet spiritum odore ac sapore sp. vitrioli æmulantem.  
 “ N. 2. Cum sale ammoniaco sublimatus, pulverem præbet insigniter diapho-  
 “ reticum, coloris aurei valde jucundum. N. 3. Pollen cum aqua diapho-  
 “ retica, maximo cum fructu podagricis exhibetur.” *Schrod.* 358.

1. Although it is a rich iron ore, yet it is saturated with an acid, and so fixed with other minerals, as to be difficultly excocted, as well as not to effervesce with acids. Is it dissolvable by the vis vitæ, as there is arsenic in it? — 2. It yields by distillation an acid spirit, like sp. vitrioli; and by sublimation flores, a-kin to the flores martis; the residuum of each being styptic. Vide *Maetsius, Coll. Chym. Leid.* p. 222. “ L. hæmatites . . . in sublime actus ammoniaco sale aromaticum sulphur diuissime spirans, unde quibuldam aroph, vel aroma philosophorum.” *Boerb. Chem.* i. 56. — 3. Some say it contains also lead, “ Participat de marte, & etiam de saturno. . . . Quod participet de saturno in specie potest probari, quod arte chymica lapis similis artificialis, colore, natura & usu, ex saccharo saturno & vitriolo martis probe mistis, & per retortam sublimatis, parari soleat, a quibusdam hæmatites artificialis dictus, & in secretis habitus, prostat tamen descriptio *M. A. N. C. An.* ii. p. 227. atque etiam eodem modo potest præparari, sublimari, &c. sicut hæmatites naturalis.” *Etmuler in Schrod.* i. 804. I never saw this artificial hæmatite. — 4. The hæmatites antiquorum was commended in many diseases as drying and astringent; and by none more than *Alexander*, in a hæmoptoe, and ulcers of the lungs, given to ðiv. levigated into a most subtle powder. “ Levigare ipsum oportet (says he) curiose, ut in tenuissimum pulverem redigatur, sitque aereus & vento persimilis.” And concludes, “ Hæc de lapide hæmatite hæctenus a me visa, & usu comprobata conscripsi.” Vide *Alex.* l. 7. c. 1. p. 215. And every author since continues the practice with the modern hæmatite. . . . “ Ab omnis ævi medicis hæmatites tenuissime tritus a ðj. ad ðiv. nec infelici successu usurpatus fuit in hæmorrhagiis quibus-  
 “ cunque, in cruenta expuitione, & in ulcere pulmonum.” *Geoff.* i. 198. . . .  
 “ Datur in substantia ad ðij. N. quod debeat in pulverem subtilissimum reduci, alias ludit tragœdias veneni mechanici. In manu gestatus donec incalcescit, sanguinem sistit. Cum acidis vertitur in naturam magis stypticam.” *Nucl. Belg.* 162. All equally true! I would expect more from it if it were well calcined first. — “ Utitur ut Phrygius,” says *Dioscorides*, l. c.

## S E C T. III.

It is given here in substance, only finely levigated, to ʒj; but ʒß. is enough. The flores, tincturæ florum, and capitis mortui, though valued elsewhere, are not in use in Britain. Are they any better than the flores, &c. martis? or so good? Vide *Maets*, l. c.

## M A G N E S.

## S E C T. I.

Magnes, Lapis Magnes offic. Magnes, *De Boot* 438—474. *Worm.* 61. *Aldrovand. Mus. Metal.* 553. *Dale* 31. *Geoff.* i. 202. *Διθός Ηρακλεια, Theophrast.*  
 VOL. I. X x de



*de Lapid.* p. 4. *Maynris, Dioscorid.* l. 5. c. 148. p. 386. The Magnet, or Loadstone.—This is a hard, solid, and pretty heavy metallic mineral, of a bluish or brownish, iron or blackish colour, without taste or smell; found most commonly in iron-mines, but not always.

It is of different colours, consistences, &c. but sufficiently distinguished from all other minerals by its attractive and directive properties, as well as many other wonderful qualities, for which I refer you to Gulielmus Gilbertus Colcestrensis Medicus Londinensis, his “*Tractatus, sive Physiologia nova de “Magnete & magno Magnete Tellure, 6 libris comprehensus. Londini 1600.*” in folio. *Sedini 1728*, in 4to. Nicolaus Cabeus, Basilius Plinius, Joannes Jacobus Sweickhardus, Athenasius Kircherus, Bohoult, Clerk, Harris, Chambers, &c. *Magnes ad aquam* : : 4750, 1000. See *Dav.*

“*Passim in ferri fodinis, præsertim Sueciæ & Norvegiæ occurrit minera, quæ vocatur magnes, qui lapis est niger, ponderosus, non valde durus, si purus est; silice & spatho sæpe intertextus, tumque minus bonus. Miræ hujus lapidis proprietates, in scriptis physicorum videantur. Nos præcipue de illa ejus dote agemus, qua occultam ferri præsentiam per eum detegere licet. . .*” Vide *Cramer.* i. 204. —Magnets are found in many countries, “*Omnes illum terra profert,*” *Gilb.* p. 11. commonly in or about iron-mines. According to the relation of some Jesuits, there is a loadstone mountain near the city *Louvo*, in *Siam.* *Harris Coll.* ii. 467. They are found frequently in Devonshire; and that either sparingly here and there among iron-ore, or in considerable bodies with it: one of which is mentioned in the *Phil. Transf.* (*Abridg.* vol. ii. p. 601.) of 60 lb. weight, which moved the needle, at about nine feet distance. “*Magnes bonæ notæ in rupibus Dartmore in Devoniam, & alibi viliores.*” *Merret. Pin.* 212.

The best stones are commonly solid, not porous, nor very heavy; when polished, of a shining dark bluish, or reddish blue, or iron colour, or blackish. “*Compertum tanto meliores, quanto sunt magis cærulei.*” *Plin.* l. 36. c. 16. p. 872. Such as suspend the greatest quantity of iron, are most valued. They are good magnets, which can lift their own weight, according to *Gilbert*: but if well armed or cap'd a very ordinary stone will suspend much more. *De Boot* mentions one of 3ij. weight, which raised ferri lbij. The *Mem. Acad.* 1702. one of 3xj. which suspended ferri lbxxvij, that is more than thirty times its own weight. Mr. *Cowper* has a small one, weighing scarce 3j. which raises ferri 3xvij. that is almost 150 times its own weight.—Since a loadstone armed can suspend, or take up much more iron than it can do alone; do not the smallest ones, cæteris paribus, take up proportionally much more than the larger? Yes. Vide *Boyle Oper.* iii. 528.

When the attractive quality of the magnet was first observed, and by whom I know not; but certain it is, it was known to Hippocrates, Plato, Aristotle, Theophrastus, &c. and the opinions of the old philosophers concerning it, are collected by Gassendi in his animadversions on Dr. Laertius's life of Epicurus. But the discovery of the directive quality is of a much later date; though authors are not agreed to whom the honour of it belongs. Some give it to the French; others to the Germans or Dutch; others to the Chinese, to the Italians, to friar Bacon, &c. Yet all seem to agree, that it was unknown till the 12th century. The declination of the needle was first observed by Robert Norman

Norman in 1576, and the variation of the declination not long before the end of the last century, by Hevelius, &c. Vide *Gilbert* & supra citatos alios auctores.

“Magnes lapis est ferro amicus, concolor fere, & indole admodum similis.” *Boerb. Chem.* i. 56. And indeed there is a notable affinity between them. For (α) both rust by moisture; (β) iron many ways can be made magnetic, even without the assistance of the loadstone; (γ) they attract one another only; (δ) both may lose their virtue by fire; (ε) both communicate it the same way; (ζ) they preserve and strengthen it in one another: and iron can be made of the magnet, whence it is called *marcasita*, by some, or *minera ferri*; as factitious loadstones are now made of iron, which exceed even the natural in some things.

## S E C T. II.

The magnet probably is astringent, like the hæmatite: I can affirm nothing positively of either uncalcined. Its magnetic vis is of no use in plaisters, though the stone might draw filings of iron out of the eyes.—“Si uteri genitaluram non retineant, plumbum & lapidem qui ferrum attrahit, his tenuiter tritis, & linteo ligatis, muliebri lacte intinctis, in subditio utitor.” *Hipp. de Steril.* ed. *Foes.* p. 686. lin. 46.

“Lapis magnes optimus est qui ferrum facile attrahit, & colore vergit in cæruleum, densus, nec admodum gravis. Vim habet crassos humores, educendi, si ex aqua mulsa ob. iii. pondere detur. Sunt vero qui crematum hunc pro hæmatite vendunt.” *Dioscorides*, l. 5. c. 148. integrum, p. 386. “Omnes autem ii (magnetes) oculorum medicamentis profunt ad suam quique portionem: maximeque epiphoras sistunt. Sanant & adusta cremati tritique.” *Plin.* l. 36. c. 16. p. 872. “Ex lapidibus unus est & magnetes & heracleia quam vocant, adsimilem hæmatiti vim obtinens.” *Galen.* l. 9. *Simpl.* p. 68. B.

“Vires habet hæmatitis, teste Galeno, adeoque adstringit, sanguinem sistit, (ustus) crassos & melancholicos humores educit. Sed usus est rarioris.” *Schroder.* 360. “Contra hernias datur.” *Hoffman.* *Dale* 31.

1. It seems too hard for our stomachs, where it can scarcely continue so long as to rust. — 2. Powdered it loses its magnetic virtue; so that it is of no use in Paracelsus’s opodeldoch, designed to draw iron out of wounds, in which it was used calcined as well as powdered. — 3. Doctors differ here widely. Some make it a hydragogue, and a cure for dropsies. (Vide *De Boot.*) Others a poison. “Usus ejus in medicina internus nullus est: imo sunt qui inter venena referunt, rationem enim turbare, & melancholicam insaniam inducere volunt.” *Worm. Mus.* 63. Some say that hung about the neck, it cures cramps and pains; held in the hand, it forwards the birth; applied to the head, it removes headaches; that a person’s having it about him, makes him courageous and eloquent; it procures friendship, and does I don’t know what: whilst others affirm that its fetid and noxious vapours cause vertigoes, epilepsies, melancholy, &c. and that gr. vi. of it, with serpents grease, and juice of nettles, are enough to turn one mad. Vide *De Boot.* l. c. “Nec deleterius est hic lapis, quod nonnulli voluerunt. Nam tradunt hujus regio-



“ nis incolæ, magnetem pauca quantitate sumptum, adolescentiam conservare.  
 “ Qua de re fertur Senior *Rex Zeilan* patinas ex magnete jussisse confici, in  
 “ quibus cibus ejus coquatur. Hoc ipse cui mandatum erat negotium, mihi  
 “ affirmavit.” *Garcias. Clus. Exot.* p. 293. — But 4. Loadstones differing from  
 one another, in colour, consistence, specific gravity, &c. as well as in strength,  
 they may differ also in virtues; so that from the effects of one, we cannot con-  
 clude, as to the effects of another, while the virtues of none of them are suffi-  
 ciently attested. Vide *Gilbert*, p. 10, 11, 34. If it is not astringent I know  
 not what it is.

“ Hic lapis ferri quædam minera est, in quibusdam Germaniæ locis, in  
 “ optimum ferrum excoquitur, & radiis solaribus, in foco vitreæ lentis ma-  
 “ joris coadunatis, expositus, ferri indicia exhibet. . . Internus magnetis usus  
 “ in medicina nullus est; licet *Galenus libro de simpl. med. facultatibus*, eandem  
 “ in illo ac in hæmatite vires agnoscat; & libro de simplici medicina, purga-  
 “ tivam ejus vim, præsertim in hydrope, ad humores aqueos educendos,  
 “ commendaverit. . . Externe exsiccat, astringit & consolidat. In emplastri  
 “ manus Dei dicti, empl. nigri, empl. divini, empl. styptici D. Charras com-  
 “ positione usurpatur.” *Geoff. i.* 203. Which plaisters the *Cod. Medic.* still re-  
 tains. Edit. 1748. But the magnet is in none of them, except the empl. divi-  
 num; as it is also in the empl. opodeldoch of the same codex, wherein are  
 32 ingredients.

The celebrated Linnæus, in his *Systema Naturæ*, (edit. sext. 1748, in 8vo.)  
 mentions as regni lapidei corpora 317 species.



# MATERIA MEDICA.

## PART II.

Containing the VEGETABLE SIMPLES.

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### LECTURE XXXVI.

Of the more imperfect PLANTS.

#### CORALLIUM.

##### SECT. I.

**C**orallium, *Corallium rubrum offic.* *Corallium rubrum*, *B. P.* 366. *T.* 572. *Corallium rubrum*, *J. B.* 3. 803. *Ger.* 1575. *R. H.* 60. *Corallium rubrum majus*, *Park.* 1299. *C. verum*, 303. *C. rubrum*, *Worm Mus.* 231. *H. Ox.* 3. 655. *Isis*, *Lin. Gen. Pl.* p. 511. *Millepora rubra*, *striis obsoletis, flexuosis*, *Id. Amæn. Acad.* 2. 329, (among the animal substances used in medicine, for we have there his *M. M. e Regno Animali* 25 *Maii* 1750.) Red Coral.—This is a very hard fine-grained lithophyton or stone-plant, of a red colour, found in the sea.

Coral is found in many places of the Mediterranean sea, as in the Sicilian and Neapolitan seas, on the coasts of Africa (toward Bastion de France) of Corsica and Majorca, of Cape Quiers in Catalonia, of Provence, &c. Some say also in the Persian gulf; but according to Mr. *Tavernier*, in the Mediterranean only, none being found in the main ocean. It is fished up from the beginning of April to the end of July; and every where much after the same manner, as you may find it described in *Savary's Diet.* i. 1496. See also *Tavernier*, *Harris Coll.* ii. 375. *R. H.* 61. In which last place it is observed, (and Count Marfigli believes it,) that the coral-fishers suppose that coral grows downward, the root being uppermost, and adhering to the under-side of projecting rocks, or roofs of submarine grottos. But the cabinets of the curious are furnished with sufficient evidence, that this does not always hold: *e. gr.* in Mr. *T. Inst. r. b.* 3. p. 339. there is a figure of a *corallium rubrum*, “*Disci* “*figulini limbo innatum, quod, (says he) in musæo meo asservo.*” i. 572.  
That



That this is the corallium of the antients cannot be doubted; and that they took it for a sea plant seems to be certain also. Hence *Ovid* in *Met.* l. 15. v. 416.

“ Sic & corallium, quo primum contigit auras

“ Tempore, durefcit; mollis fuit herba sub undis.

“ Το γαρ κεραλιον, &c. Curalium enim, nam & hoc inftar lapidis, colore quidem rubrum, teres ficuti radix; crefcit autem in mari.” *Theoph. de Lap.* fol. 14. — “ Το δ’ κεραλλιον, &c. Corallium, quod aliquis lithodendron appellarunt, marinam effe plantam conftat, quæ quidem alto mari exempta, duratur ftatim atque emergit, quafi a circumfufo nobis aere lapidefcit, con crefcatve. Plurimum invenitur in promontorio Syracufis imminente, cui *Pachino* nomen eft. Probatiffimum rubens, colore fandarachæ, aut fandycis faturatæ, nec fecus terenti facile cedens, & æquabili ufque quaque concreto, infuperque musci aut fuci marini odorem referens, & quam ramofiffimum, forma fructus cinnamomi æmulum.” *Dioscor.* l. 5. c. 139. p. 382. — “ Forma eft ei (curalio) fruticis, color viridis. Baccæ ejus candidæ fub aqua & molles, exemptæ confestim durantur & rubefcunt quafi cornua faviva fpecie atque magnitudine. Aiunt tactu protinus lapidefcere, fi vivat. . . Probatiffimum quam maxime rubens, & quam ramofiffimum, &c.” *Plin.* l. 32. c. 2. p. 766. That it is foft under water, and hardens in the air, is a miftake; but that the baccæ are foft agrees with fome late accounts. According to *Monf. le Compte Marfigli* coral has a broad flat thin root, fpread like a plate on the fubftance to which it is fixed, which is not always a rock, but fometimes fhells, potfherds, bottles, mens fculls, &c. now-and-then covering or lining their internal furface. From this root rifes the trunk, (or trunks) firft fingle and then branched. It is all covered with a foft eafily feparating bark, when recently extracted from the fea; and in this bark are numerous fucciferous veffels, containing a glutinous, milky juice, which when it thickens, becomes of a reddifh faffron colour. Within this bark is the fubftance of the coral, hard, red and fuperficially ftriated from the root to the extremity of the branches lengthways. Over all the bark ftand many white flowers of fix or eight petales, refembling in figure and fize a clove, which fhrink the moment the coral is taken out of the water, but if put into it again expand and continue fo to do for fome time: and thus they may be preferved for twelve days; after which they take the figure of fmall yellow balls, drop off, and fink to the bottom of the water. Some take thefe for the feeds: they contain only a glutinous juice like that of the bark, and of the tops of the branches, which are alfo foftifh and fucculent, when firft taken out of the fea. Vide *Hift. R. Acad.* 1710. p. 97. and *Geoff.* ii. 250.

*N. B.* “ Lithophyta ab externæ fuperficie confideratione redegit ad genera, licet & hæc propriis feminibus gaudere nos non lateat. *Marfilius* detexit & depinxit petala fex, ftamina fex, piftillum unicum, femen unicum in his. Has plantas, licet lapideæ fubftantiæ, ad regnum lapideum non pertinere, docent flores & fructus in lapide nullo unquam obvi.” *Lin. G. Pl.* p. 501. edit. 1742.

*Mr. Reaumur* however, takes only the thick coarfe bark, together with a much finer one, which the eye does not diftinguifh from the coraline fub-

ftance

stance it immediately covers, for a plant, or the vegetable part; and all the rest of the coral to be nothing but a stone, without organization: for according to him, the plant or vegetable part wanting a support, as many others do, in place of seeking one without it, by little and little forms one within itself, which it embraces and surrounds; the nourishing juices of the vegetable carrying along with them a most subtle sand of which the stone-coral is formed, just as the juices which nourish an oyster, carry along with them little stony particles, of which the shell is formed. Mr. *Reaumur* both saw this fine sand, and felt it between his teeth.

"In fine, say the Academy, this little system, seems to be put beyond doubt by a singular observation of *Boccone*, who saw a coral well covered with its bark, the heart, or middle whereof (according to its middle, or the axis of the cylinder) was a small branch of wood, some inches long: about this branch the coral-bark had vegetated, and deposited the true coralline substance. The coral-flowers discovered by *C. Marsigli* agree well with Mr. *Reaumur*'s idea, since they grow from the bark only." Vide *H. R. A.* 1727. p. 50. and *Mem. ejusdem anni*, p. 378—396. where is also added — "Another curious natural philosopher, and accurate observer (*physicien curieux, & habile observateur*) of the productions of the sea, ranks coral almost among animal substances, conjecturing it to be the work of some sea insects: for he has found the same sort of flowers on madreporas and other stony sea plants. But according to him they are not true flowers. And as the tubularia was taken for a sea plant and afterward found to be the work and habitation of certain worms or insects, so he suspects there may be a mistake about the other stony sea plants, corals, pori, madreporæ; and even about the lithophyta, although by their softness and flexibility, they appear to be of another class. He reckons that all these bodies may be made by worms which dwell in them, as wax is by bees. And what they call the flowers of these pretended plants, which don't come out, or open but when they are in the water, and shut up or disappear when out of it, are little worms, which show themselves in part, or hide themselves, according as they like or dislike the element in which they are. And in effect they thus play all the seasons of the year, which does not agree with real flowers. — We shall not (say the Academicians) follow Mr. *Reaumur* in his answers. His author seems not fully satisfied with the manner of these little worms making their houses. The nature of coral therefore must be very dubious and difficultly defined. . . The ancients thought it undoubtedly a stone." Vide l. c.

Upon the whole I think Mr. *C. Marsigli*'s opinion, which is the same with that of the ancients, nothing weakened by what the Academicians have advanced. For (a) allowing Mr. *Reaumur* to be in the right, coral is as much a vegetable substance, as an oyster shell is an animal substance. But (b) how does it appear that it is not organized, as well as ivory? And (c) why may not coral surround a stick, as well as line a pitcher, or a scull? Farther (d) how can any sea plant want a prop or support, since they grow as well downwards or horizontally as upwards? Is not coral then a real vegetable? Sub judice lis est. Vide *Johi Baster M. D. (Zelandici) Observationes de Corallinis*, usque



usque infidentibus Polypis, aliisque animalibus marinis. *Pb. Transf.* vol. 51. p. 258, 280, where Mr. *Ellis's* remarks on Dr. *Baster's* observations begin.

"It is rare to get a coral plant three or four pounds weight; and such sell very dear. *Tavernier* says that in Japan they value nothing so much as a good grain of coral for the string of their purses; so that a piece as big as an egg without any flaw, has been sold for 20000 crowns: and that all the Levant is full of Marfilian coral necklaces and bracelets. "Wrought coral, says he, is sold at 5 *l.* per ounce. I have coral of several colours, as of the common red, paler, deeper, rose-coloured, white, half-white, and half-red, filamort, which last was brought from America. The most remarkable piece that I have is of a red colour, which took its beginning in the bottom of the sea, (*sur un plat de terre cassé*); it is half a foot high. Whence it is evident that marine plants are not nourished the same way the terrestrial are. What nourishment can coral draw from a piece of baked earth, from a man's skull, a broken bottle, hard flint stone, &c. for it is found on all these kinds of bodies. I have given my thoughts on this subject in the *Mem. Acad. R.* 1700." *Voy.* i. 5. For the etymon of the name, and the different ways of writing it, vide *Bod.* in *Theophrast.* p. 419. — There is sometimes kept in shops, though seldom used, the

*Corallium album offic. i. e. Madrepora vulgaris, T.* 573. *C. album ramosum, B. P.* 366. *C. album fistulosum, Imper.* 627. *Cor. album, R. H.* 62. *Worm Mus.* 232. *De Boot,* 318. *H. Ox.* 3. 655. *C. album officinarum, oculatum, J. B.* 3. 305. *C. album, Ger.* 1576. *C. album majus, Park.* 1300. *Madrepora simplex ramosa, ramis teretibus lævibus tubulosis, lamellis integris, Hort. Cliff.* 481. *Lin. Amœnitat. Acad.* 2. p. 328. The White Coral. This is also found in several places of the Mediterranean.

## S E C T. II.

Coral is absorbent, and antacid; called cordial, stomachic, hepatic, &c. commended in all diseases from acids in the primæ viæ, fluxes, hæmorrhages, poisons, pestilence, melancholy, epilepsy, &c. Is it preferable to chalk or oyster shells? It does not appear to be so.

*N. B.* "Corallium exiccat, refrigerat, adstringit. Cor præcipue, deinde ventriculum, & jecur roborat; sanguinem purificat, ac proinde pesti, venenis, febribusque malignis adversatur; hilarem hominem efficit (nigrum tamen cor. homines melancholicos reddere perhibetur) sistit fluxus quoscunque alvi, uteri, penis, gonorrhœam; epilepsiam infantium præcavet (si recens nato ante omnem cibum, in lacte materno gr. x. exhibeantur). Extrinsecus commendatur ad ulcera, quæ carne replet; ad cicatrices quas extenuat; ad oculos, quorum etiam lachrymas sistit, viscumque recreat in collyriis. Dosis a ʒj. ad ʒj. Rutilantia corallia, ex communicatione Paracelsi, amuletum exhibent celebre, contra terriculamenta, fascinationes, incantationes, venena, epilepsiam, melancholiam, dæmonum insultus, fulmina. Album appensum, ut pectus contingat, hæmorrhagiam sistit mulierum, & fluxum album. Operationes quibus corallia elaborantur sunt præparatio, calcinatio, solutio, coagulatio, liquatio, sublimatio." *Schrod.* 339—342.

1. It has no taste, and only smells like sea-weeds, when fresh and taken out of the water. The milky juice is said to be somewhat astringent. "Dum sub aquis viget planta, ejus tubuli, papillæ & cellulæ succo turgent lacteo, viscido, saporis acris, cum aliqua astrictione, ad piperis & castaneæ saporem accedentis. Cum per aliquod tempus aeri fuit exposita, succus exsiccat, in flavescentem & friabilem substantiam, acrimonia destitutam, sed tantummodo leviter adstringentem convertitur." *Geoff. ii. 251.* — 2. It effervesces with, and dissolves in, acid liquors, vegetable as well as mineral, and destroys their acidity, making them almost insipid. "The solution of coral in distilled vinegar is of a greenish colour, and of an insipid taste; but its salt is a little styptic and bitter." *Vide Lem. Chym. 412, 419.* "The solution is of a sweetish taste, inclining a little to bitter." *Ibid. p. 413.* "It is observable that a solution of coral in sp. vitrioli (also in aceto distillato) is of a greenish colour; and being precipitated oleo tartari p. d. lets fall a very fine white powder, which effervesces with acids, and contains a great many particles of iron, or which a magnetic knife attracts. No such particles are found in crabs eyes, pearls, c. c. c. treated the same way, neither are their solutions in aceto distillato green." *Vide Hist. Acad. R. 1711. p. 46.* — 3. The colour of red coral may be extracted from it, without sensibly impairing its weight or hardness, by white wax or fresh milk; although oils, as ol. olivarum, juglandium, amygdalarum, &c. or spirits draw no tincture from it. Succus citri takes a tincture, but unless very carefully kept it loses it again in two months. This tincture of coral in milk or wax, can be transferred into other substances also, but it does not appear that it has any virtue. *Vide Lem. Chym. p. 405. and Hist. Acad. R. 1710. p. 63.* — 4. Corallii rubri offic. lbj, chymically analysed, gave sp. urinosi volatilij ʒij. gr. x. ol. empyreumat. gr. ij. vel iij, and the residuum calcined salis fixi salis ʒj. gr. iv; a sort of calx remaining. The sp. differed not from sp. c. c. All the lythophyta yield much the same principles. *Vide Mr. Geoff. Obs. on the Analysis of Coral: Mem. Acad. R. 1708. p. 130.* who ascribes its virtues more to these principles, than to its absorbency. See his *Analysis Lactucæ extracti M. M. iii. 646.* "Coralli recens a maris sinu extracti & cortice spoliati ʒiij. (analysi) phlegmatis albicantis gr. xvij. suppeditarunt, sp. urinosi gr. xlviij, cum tantillo olei bituminosi. Residui in retorta pondus fuit ʒij. ʒvj. gr. xxxviij. (so that gr. xl. were lost); ex quibus per lixivium salis fixi gr. xxxv. extracta fuerunt. Jactura in calcinatione & distillatione fuit circiter gr. xxxv. (But gr. xl. were lost in the calcination. Were gr. v. gained in calcination?) Ex coralli a sesquianno e mari educti ʒiij. phlegmatis urinosi oleo bituminoso permisti gr. xxx. prodire. Residua massa ʒij. ʒvij. gr. xxx. pendebat, (here gr. xii. were lost); ex qua post calcinationem salis fixi salis gr. xxv. per lixivium elicita sunt. Ex coralli ʒiij, gr. xxxvi in operatione avolarunt." *Geoff. M. M. ii. p. 253.* How greatly these analysis differ from (the former, or rather from) one another! That recent coral should give more spirit, or rather phlegm, than that kept a year and half, is not strange: but how it comes to afford more fixed salt I cannot understand. According to *Lemery* "Coral lbj. will yield of a spirituous liquor with some black oil ʒiv. more or less, according to its age: and salis fixi alcali ʒij. ʒij." *Chym. 406, 407.* "The lythophyta afford a fifth part more of volatile salt than hartshorn itself. All



" the sea plants resemble one another in their analysis more than the land plants do, according to Mr. *Le Compte Marfigli*." *Hist. Acad. R.* 1710. p. 63. But c. c.  $\text{℥xvj.}$  give *salis volatil.*  $\text{ʒvj.}$  and *sp. volatil.*  $\text{℥iij.}$  Vide *Lem. Chym.* p. 854. But it matters not whether it yield much or little: our organs will never separate it. If coral and sponge agree in their analysis, they surely differ in their virtues widely. I calcined in a red-hot crucible, for more than an hour,  $\text{ʒ℔.}$  of long-kept coral; it became very white, and was reduced to gr. xxvii, so diminished just one tenth: so that according to this proportion, the residua massa of  $\text{℥iij.}$  of the year and half old coralli, should have been less than  $\text{℥ij.}$   $\text{ʒv.}$  gr. xlv. But—5. Coral, on account of its consistence, can be of no use externally, unless it be mechanically in dentifrices, and eye powders for horses. But inwardly as absorbent it may do service in several diseases, especially in children and child-bed women. It is but a weak astringent, though the ancients seem to have thought otherwise. For—6. It is commended by *Dioscorides* as astringent and cooling, for hæmorrhages, dysuries: he adds, "Quin & potum ex aqua lienem absumit." p. 382. "Surculi (curalii) infantiae adalligati, tutelam habere creduntur. Contraque torminum ac vesicæ & calculorum mala in pulverem igne redacti potique cum aqua, auxiliantur. Simili modo ex vino poti, aut si febris sit ex aqua somnum afferunt. Ignibus diu repugnant. Sed eodem medicamine sepius poto, tradunt lienem quoque absumi, &c." Vide *Plin.* l. 32. c. 2. p. 768. "Corallium velut arborea planta est, quæ in lapidem indurescit. . . Vim habet valde siccantem, & moderate adstringentem. Convenit itaque sanguinem spuentibus, & dysentericis." *Paulus* l. 7. p. 627.

I do not find it in *Hippocrates*: nor in *Galen's* book *De Simpl. Medicam. Facultatibus*; though he uses it as an astringent for spitting of blood, &c. in several compositions, particularly l. 7. *De Comp. Med. sec. loca*, p. 183. *B. F. H.* and 184 *F.* where there is a *pastillus ex corallio*. Who attributed all the other virtues to it first, I know not. "Corallum rubrum albescit oleosis quibusdam substantiis diutius maceratum & coctum, ut oleo anisi, fœniculi, mali citrei, &c. . . Hinc concludere licet, non tanquam mere absorbens terrestris habendum esse, sed sale volatile urinoso, & oleo bituminoso donari, cum terra conjunctis, a quibus ejus energia pendet." (Then he cites *Dioscorides*, and adds) "Quæ quidem vires, non a solo terreo principio absorbente & exsiccanti pendent, sed etiam ab ejus oleo bituminoso & balsamico proficiscuntur. In hæmorrhagiis quibuscunque, in alvi profluviiis, & fluore albo utiliter præscribitur." *Geoff.* ii. p. 254. Strange! Has the volatile salt any use here; or the bituminous oil, which boiling water cannot extract? He owns that the "Tincturæ coralli rubri sinceræ, in quibus sulphurea & bituminosa pars coralli continetur, effectus agyrtarum promissis non respondebunt." *Ibid.* 256.

### S E C T. III.

Coral is prepared by levigation on a porphyry with water, which requires a good deal of time and pains. Calcination would facilitate it. It may be given to  $\text{ʒj.}$

Our

Our Dispensatories order it to be first powdered in a mortar, and then (with water *sec. Pb. Lond.*) levigated on a marble, to an impalpable powder. But thus it is commonly gritty between the teeth; whereas if it were treated as our Pharm. orders the preparation of the bolus armena, continuing to levigate what subsides, the design would sooner and more certainly be accomplished.—Let this be a *general rule* for all such gritty substances.

All other preparations are useless or owe nothing of their virtues to the coral. Magisterium corallii is coral dissolved in acetum destillatum, and precipitated with ol. tartari p. d. into a fine and very white powder, which is well washed and then dried. It is said to be cordial, alexipharmic, and astringent: and is recommended for the dysentery, hæmorrhages, &c. But *N. B.* This preparation is of no use as an antacid or absorbent, on account of the precipitating with ol. tartari. Vide *Lem. Chym.* 414. Sal corallii is the solution filtrated and evaporated to dryness. “Corallii ʒiv. if intirely dissolved in the “distilled vinegar, will yield salis ʒv. ʒvj. a little styptic and bitter to the “taste. It takes naturally a branchy figure, or appears like a forest of salt, “as do the salts of pearls, crabs-eyes. C. C. C. &c. prepared the same way.” Vide *Lem. Chym.* 417, 420; and for the tinctura coralli sincera, *Geoff.* i. p. 255. whose judgment of the preparations of coral (quæ fere hodie ab omnibus rejiciuntur) is just enough.

## C O R A L L I N A.

## S E C T. I.

Corallina, Muscus marinus *offic.* Muscus coralloides, squammulis loricator, *B. P.* 364. (*An ʒ—vix.*) Sertularia ramis teretibus, articulis cylindraceis lapideis æqualibus, *F. L.* 372. *Aman. Acad.* ii 329. inter animalia. Muscus maritimus, five Corallina officinarum, *B. P.* 363? Coralina, *J. B.* iii. 810. *R. H.* 65. *Syn.* 33. *T.* 570. C. altera, *Tab.* ii. 813. C. Anglica, *Ger.* 1571. Muscus marinus, five Corallina alba officinarum, *Park.* p. 1295. Sea-Coralline, or White Worm-feed. — This is a small bushy stone-plant, two or three inches high, consisting of slender, round and jointed fibre-like stalks and branches, generally of a white (though sometimes of a grey, greenish, purplish, or other) colour, saltish taste and sea smell, found on sea rocks, shells, weeds, &c.

It ought to be intire, not in a powder; and of a strong smell if recent. “Lithophyton est articulatum monilis instar, connexis articulis.” *Lin. Gen. Pl.* 984. p. 511. He calls it sertularia. I think it is articulate rather by a sort of gomphosis, the small end of the superior joint being fixed like a nail in the bigger end of the inferior one.

“Muscus marinus (βρυον θαλασσιον, &c.) in saxis testisque ad mare nascitur, “capillaceus, gracilis, sine caule, valde adstringentis gustus. Ad inflammationes & podagras, quas refrigerare opus est efficax.” *Dioscorid.* l. 4. c. 99. p. 283. “Bryon marina sine dubitatione est herba, lactucæ foliis similis, rugosa veluti contracta, sine caule, ab ima exeuntibus foliis. Nascitur in scopulis “maxime, testisque terra comprehensis. Præcipua siccandi ei spissandique



“ vis, & collectiones omnes inflammationesque cohibendi, præcipue podagrarum, & quicquid refrigerare opus sit.” *Plin.* l. 27. c. 8. p. 672. Vide *Theophr.* 4. *Hist.* 7. p. 403. & *Bod.* p. 414. *Pliny's* bryon differs widely from that of *Dioscorides*, though the virtues are the same.

## S E C T. II.

It is absorbent, and said to be astringent; but used only as anthelmintic. Dose to ʒj. It was an ingredient in the pulv. vermifug. of *our* and the *London Dispensatory*; but it is now omitted in both. — “Refrigerat, siccat, adstringit, incrassat: vi lumbricos necandi & expellendi celeberrima est, intus & extus adhibita. Dosis ad ʒj. *Præpar.* Magisterium cum lixivio forti. Dosis ʒj.” *Schroder.* p. 571.

1. It is of a saltish taste; and salt kills worms. But what will one drachm of salt do? Nothing. Much more may be taken without hurting them: and there is not in ʒj. of coralline gr. i. of sea salt: I may say gr. ʒ. Hence its saltiness can have no effect on worms. Besides, worms will live in a strong infusion of coralline six or seven days. Vide *Redi De Animalculis vivis, Observ.* *Amsteld.* 1708, in 12mo, p. 162. But — 2. “E corallinæ ʒxxiv. per retortam distillatis prodierunt phlegmatis albicantis, odore pisculento ʒiij. ʒv: spiritus urinosi rufescentis ʒx. Jactura fuit ʒiij. in destillatione. In retorta materia residua pendebat ʒx: unde salis fixi lixiviosi salis ʒiij. gr. xxx. Hinc patet corallinam virtutem suam obtinere a sale volatili oleoso copioso multa terra implicito.” *Geoff.* ii. p. 258. But what are its virtues? He gives it the same *Dioscorides* does. Will a sal. volatil. oleosum cool, &c? — He adds, “Hodie vero facultas vermifuga plurimum celebratur.” If its vis vermifuga depends on this volatile salt we shall find 100 of such vermifuge. Vide *Laciniacum.* Verbo; if it be an anthelmintic, it is such an one as c. c. c. or other hard gritty substances. *Matthioli* mentions a boy who on taking coral. pulv. ʒj. discharged 100 worms. “Si quidem non modo interficit lumbricos, sed eos quoque eadem die expellit, magna sæpe cum adstantium admiratione . . . ; potissimum si detur ex passo, aut cum Ægyptiæ siliquæ pulpa.” *Matth.* 794. — 3. It is evidently absorbent, and effervesces with spirit of vitriol, and is perhaps as good as coral. But if their virtues depend on the sal. volatil. urinosum, it must be preferable to coral, yielding sixteen times more urinous spirit, according to Mr. *Geoffroy's* analysis; which indeed I cannot warrant to be just: it appearing to me scarce credible, that such a dry substance as coralline should yield more than one half of its weight in phlegm and spirit; corall. ʒxxiv. giving phlegm ʒiij. ʒv. and spiritus ʒx, which with jacturæ ʒiij. make exactly ʒxiv, which is little less than what the recent bark of coral afforded.

Coralline was much commended as a vermifuge in *Quincy's* day; is in both his worm-powders; in Dr. *Fuller's* pulv. anthelminticus; pulv. vermifugus *Cod. Medicam. Paris.*; pulvis contra vermes, &c. though it is now in disgrace at London; how justly I shall not say. Only I do not think much can be expected from it, if given only to ʒj. or about that quantity: perhaps ʒj. would do better? “Exhibetur sola in crassiusculum pulverem contrita a ʒʒ.

“ ad 3j, vel cum aliis medicam. vermes necantibus.” *Geoff.* ii. 259. If its effect depend on its gritty hardness, it needs not be very finely powdered.

# A G A R I C U S.

## S E C T. I.

Agaricus, *Agaricum offic.* Agaricus, five fungus laricis, *B. P.* 375. *T.* 562. Agaricus, *Dod. P.* 486. *Ger.* 1365. *Park.* 248. *Dale,* 58. Agaricum, *J. B.* i. 2. 268. *R. H.* 107. A. vel Agaricus *offic.* *Geoff.* ii. 771. Agarick:— Which, as we have it in the shops, is a white, light, spongy, friable substance, of different sizes and figures; of a sweetish taste at first, then bitter and nauseous; and of a musty smell.

It is an imperfect parasitical plant; or a fungus growing on the trunk of the larix, (*B. P.* 493,) or larch tree, about the bigness of ones fist, or larger; somewhat round; covered with a callous greenish-brown bark, which with what is hard or blackish is pared off before it comes to the shops, in which it is all white and spongy, with a few interwoven fibres only. Hence

“ Res frangi presto preciosus Agaricus esto,

“ Candidus & splendens, bonus in libra leve pendens.”

*Otto Cremonensis de electione simplicium Rhythmici.*

“ In laricibus trunco adnascitur, rarique in ramis invenitur. Si crescit in his arboribus, tum terebinthinam non amplius reddunt, referente Her-  
“ manno, Cynosuræ (edit. Argentorati 1726, in 4to.) p. 244.” *Geoff.* ii. 771.

Agaricus, from Agaria, of Sarmatia, whence it was anciently brought. Vide *Hoff.* p. 2. “ The best agarick, which is brought from the Levant, is said  
“ to come from Tartary. It comes also from the mountains of Dauphiny  
“ and Trent.” *Hist. Acad. R.* 1714. “ At present it is brought from Dau-  
“ phiny, Savoy, and the mountains of Trent.” *Lem. Diel.* p. 11. — “ Optimus  
“ habetur hodie, qui in sylvis Tridentinis & Noricis oritur.” (*R. H.*) “ Non  
“ ut reliqui fungi nocte una prodit, sed annum interdum ad sui perfectionem  
“ requirit.” *Dale.* — “ The best agaric comes from the Levant, that from  
“ Dauphiny and Savoy is not so much esteemed. What comes from Hol-  
“ land is worst of all, being whitened with chalk on the outside. Most of  
“ the Levant agaric is brought from Smyrna, which has it from Dadalia,  
“ a town fifteen journies distant.” Vide *Savary Diel.* i. p. 34. “ Agaric, *Boulet*  
“ *blanc*, &c. comes to Marseilles from (the Levant, viz.) Satalie and Aleppo;  
“ from Salez and Tetouan; and from Savoy and Briançon in Provence. The  
“ value of the French *per lb.* being between 25 and 30 sols; of the African,  
“ between 40 and 50; and the Levant, between 50 and 60.” Vide *S. Carf.*  
*Sav. Diel.* i. p. 419. — “ The best agaric comes from Barbary; what comes  
“ from Russia, is not so good.” *Miller Bot.* p. 18. — “ Hodie in Delphinatu  
“ Gallæ, in Alpibus, aliisque montibus, supra larices colligitur.” *Geoff.* ii.  
773. — “ Optima species deglubitur e laricibus, quæ uberrime in Tartariæ,  
“ præ-



“ præsertim Siberiæ sylvis proveniunt.” *Carth. M. M.* i. p. 605. How little pains are we at to be acquainted with simples!

“ Agaricum radix fertur silphii similis, non tamen densa summa facie veluti silphium, sed tota rarior. Duo ejus genera mas & fœmina. Præfertur vero fœmina, quæ quidem rectas intus habet pectinum modo venas, & quasi divifuras. Mas autem rotundus est, & undique congener ac sui similis. Sed est similis utrique gustus, scilicet initio dulcis, mox, ubi diffundi per os cœperit, in amaritudinem transit. Gignitur in Sarmatiæ regione que Agaria dicitur. Sunt vero qui plantæ radicem esse affirmant: alii uti fungos ex putredine nasci in arborum corticibus. Nascitur & in Galatia, Asia & Cilicia in Cedris, sed friabile & infirmius.” *Dioscorid.* l. 3. c. 1. p. 170. “ Galliarum glandiferæ maxime arbores agaricum ferunt. Est autem fungus candidus, odoratus, antidotus efficax, in summis arboribus nascens, nocte relucens. Signum hoc ejus quo in tenebris decerpitur.” *Plin.* l. 16. c. 8. p. 380. “ Agaricon ut fungus nascitur in arboribus circa Bosporum, colore candido. . . Id quod in Gallia nascitur infirmius habetur. Præterea mas spissior amariorque. Hic & capitis dolores facit. Fœmina solutior, initio gustu dulcis, mox in amaritudinem transit.” *Plin.* l. 25. c. 9. p. 640. “ Agaricus oritur in truncis arborum magnarum, vetustate jam putrescentium & erosarum, tanquam earum vel apostema vel fungus. Est autem duplex, mas & fœmina: mas est malus, præsertim qui longus, niger, durus, densus, gravis, & in fragmentis ceu villos nervorum ostendit. Fœmina, si rotundior, alba, porosa, & raro valde, & frangi facilis, levis, dulcis primo gustatu, mox amara, & styptica, est melior, præcipue summa corporis sui parte: nam stipes quod ligni putrefacti aliquid præferat malus est, ut erosus agaricus.” *Mesue de Simpl.* c. 3. p. 51. Hence it seems not to differ from the agaricon antiquorum. I find it not in *Hippocrates*, nor *Theophrastus*. — “ Agaricum nostrum idem est cum agarico veterum licet aliter sentiat Salmasius.” *Geoff.* ii. 772. If it is, they attributed to it more virtues than experience has confirm’d.

## S E C T. II.

Agaric is a slow and disagreeable purgative, rank’d amongst the phlegmogogue. It is also said to be diaphoretic, diuretic, uterine and anthelmintic: and is commended in obstructions of the viscera, jaundice, dropsy, rheumatism, gout, &c. But it is little used now, except in the mithridatium and theriaca; very seldom alone as a cathartic.

“ Pituitam educit tenuem, aquosam, serosam, & viscosam totius corporis, & imprimis excrementa mesenterii, tum capitis & pulmonum; urinam ciet & menses; calfacit 1. sicc. 2. *N. B.* 1. Quia ventriculo nauseabundus est, corrigitur stomachicis, e. g. zinzibere, caryophyllis, spica celtica, &c. *N. B.* 2. Quia tarde operari solet, additur stimulus ex sale gemmæ, crystallis tartari, & similibus. Dosis a ʒj. ad ʒij. In infusione a ʒij. ad ʒv; extracti ad ʒß. vel ʒij.” *Schroder.* p. 756.

1. At first tasting it is sweetish and not very disagreeable; but it soon is bitter and nauseous. An infusion of it like tea, filtered the second day, was of a good brandy colour, of an unpleasant rancid sweetish taste at first, then very bitter,

bitter, and nauseous for a long time; though out of ʒj. of the agaric scarcely gr. i. was dissolved in ʒv. of water. — 2. It is very light and spongy: and on pounding it may cause sneezing, coughing, watering of the eyes, &c. but it does not thence follow “*Agaricum habere vim exurendi adinstar euphorbii.*” *Zwelfer. Ph. Reg.* p. 632. — 3. According to Mr. *Belduc*’s experiments, agarici ʒij. yielded to sp. vini extracti resinoli ʒviß: and the residuum weighed ʒix; so that ʒß. was lost. Water, he says, extracts nothing from it, but turns it to a mucilaginous or slimy substance. *Vide Hist. Acad. R.* 1714, p. 35, for the rest. The residuum of the aqueous infusion yielded without heat 10 spirit of wine, at the rate of gr. xxii. per ʒj. of sulphur: so that  $\frac{2}{3}$  of agaric is sulphureous. I call it not a resin, because what I precipitated and dried was white, and very friable, almost like the agaric itself. The spirit was deeply tinctured, and tasted sweetish at first, and then nauseous. — 4. Taken inwardly it operates slowly, purges little with nausea, and sometimes sweating, fainting, &c. leaving the stomach rather worse than better. Hence in correcting it, respect was to be had to its levitas, tarditas, & molestia; inasmuch that the compositions it was used in, *e. g.* pil. de agarico *Mesues*, &c. would have been nothing the worse for the want of it. Perhaps it is a better ingredient in opiates than in cathartics. Yet *Dioscorides* commends it extravagantly, and almost in every disease; as in gripes, crudities, contusions, jaundice, asthma, dysentery, gravel, green-sickness, vapours, spleen, phthisis, (“a stomachicis per se manditur & devoratur, citra ullius liquoris sorbitio- nem,”) for vomiting blood, sciatica, epilepsy, agues, poisons, &c. and concludes, “in summa internis omnibus vitiis subvenit, pro virium & ætatis ratione propinatum.” See *Dioscorid.* l. 3. c. 1. p. 170. and *Geoff.* ii. p. 773. for the analysis.

Agaric has been given in substance to ʒij, in infusion to ʒiv. “Sed & al- vum purgat ʒj. aut altera, si cum aqua mulsa bibatur.” *Dioscorid.* l. c. In a word, I reckon it one of the fungi perniciales. Were it not for the two grand opiates the shops might very well do without it.

“*Analysi chymica ex agarici candidissimi lbij. ʒxj. prodierunt humorum ʒxix. ʒij. gr. lxx; olei fluidi ʒxvj. ʒvj. gr. xxv; carbonis ʒxij, unde cinerum ʒj. ʒij. ac inde salis fixi alcali ʒij. (ergo terræ ʒix): & jactura fuit ʒx. ʒvj. gr. lix.*” secundum *Geoff.* ii. 773. who adds, “Hinc liquet agaricum constare ex tartareo & ammoniacali sale, cum oleo copioso conjunctis, & exigua admodum terræ portione, &c.” *Is the terræ portio admodum exigua?*

## A U R I C U L Æ J U D Æ.

### S E C T. I.

Auriculæ Judæ, Fungus Sambucinus *offic.* Agaricus Auriculæ form. 7. 562. Fungus Membranaceus Auriculam referens, sive Sambucinus, *B. P.* 372. (Primum genus fungorum perniciosorum. *Clus. H.* 2. 276.) *R. H.* 106. Fungus Auriculæ Judæ, coloris ex cineraceo-nigricantis, perniciosus, in Sambuci candice nascens, *J. B.* 3. 840. F. Sambucinus, sive Auricula Judæ, *Ger.*



1581. *Park.* 1320. Membranaceus, Auriculam referens, *H. Ox.* 3. 642. *Peziza Auriculam referens*, *Cat. Giff.* 195. *R. Syn.* 18. “*Peziza*, *Dill.* Cyathoides, “*Michb.* 1. 102. p. 222. Fungoides species, *Bot. Paris.* t. xi. f. 45. 6. 7. “Fungus campanulatis feminibus orbiculatis, convexo-planis, in sinu refertis.” *Lin. G. P.* p. 510. Jews-Ear. — This is a membranaceous fungus, turned up like an ear almost, blackish above, greyish underneath and veined, of an insipid taste, and musty smell, growing on the trunk of old elder trees.

“They grow only on the under part of the trunk, in the beginning of the spring; not on every old elder tree, but more commonly on such as are planted on coney boroughs, for shade and shelter, and not so frequently on them in other places. They are soft and limber, while they are fresh, and not very thick, but transparent. Dried they become of a blackish-grey colour, and may be kept a year and more.” Vide *Parkinson* l. c. I have kept them upwards of twenty years, without their appearing any way spoiled. “*Annosæ arboris apud boreales, præsertim ramis accrescit excrementum corticosum. . . Plebique Angliæ & Germaniæ Judæ aures vocatum.*” *Lob. Adv.* 434.

## SECT. II.

It is commended for sore eyes, mouths and throats, in decoction, infusion, cataplasm, made with milk or water; and infused in rose-water or vinegar. But I reckon it useless.

“*Spongia Sambuci (Auriculæ Judæ) oculorum affectibus medetur, macerata in aqua appropriata & imposita. N. B. Sunt qui infusum spongiæ bunt ad hydropis curam.*” *Schroder.* p. 671. “*Omnis generis inflammationes & tumores ex aqua rosacea aut vino impositas, sedare & deprimere, tradidere quidam apud Tragum. . . In gutturis tumoribus, ait Clusius, acetum in quo maceratus sit exhibere solent, ad gargarisandum & guttur eluendum.*” *J. B.* iii. 840. “*In raucedine a frigidis humoribus vulgus utitur fungo sambuci suspenso in potu.*” *C. Hoffman.* p. 65. “*Jews-ears boiled in milk and drunk, help sore throats. . . As they resemble the ears of a man, so boiled in white wine, and the wine drunk, and the Jews-ears applied to the ears outwardly, will help deafness, inflammations and other infirmities of the ears.*” *Culpepper Ph. Lond.* (ed. 1653. fol.) p. 51. “*It is a sort of poison.*” *Lem. Dict.* 62. “*Vis astringendi & exsiccandi ipsi tribuitur. Interne raro sumitur. Infusus in vino, vel in aqua conveniente, fortiter alvum laxat, & hydropicorum aquas miro modo pellit, ut refert Simon Pauli.*” *Geoff.* ii. 770. — It is altogether insipid, neither viscous nor astringent, nowise changing a solution of green vitriol. Nor is it poisonous; for I know one who told me, he drank the milk in which it was decocted for a sore throat, without being hurt by it. Nor do I think it purgative; if it is, it is singular. What is the dose? Is it not rather useless, and justly expelled the *London* and *Edinburgh* Dispensatories?

## M U S C U S.

## S E C T. I.

There are about 306 mosses named in *Dillenius's* edition of *R. Synopsis*, distributed into sixteen genera; each of which, no doubt, is of use in the creation, (vide *Hist. Muscorum Præf.* p. 6. printed Oxonii 1641, in 4to.) which may be said also of every species plantarum. But I shall here only mention such as are commonly used; and whose virtues are said to be pretty well ascertained. Though time and experience may perhaps make farther and juster discoveries concerning them.—These are,

## S E C T. I.

1. Muscus, *M. arboreus*, *Usnea offic.* Muscus arboreus, *Usnea officinarum*, *B.P.* 361. *R. H.* 114. *R. Syn.* 64. Common Hairy-tree Moss. “In Anglia rarior est.” *Syn.* It is celebrated as a noble styptic for fresh wounds in the *Germ. Eph.* an. 2. p. 92. and was used in the pulv. veres cyprii odorati.

2. Muscus capillaris, *Adiantum aureum*, *Polytrichum aureum*, *offic.* *Polytrichum aureum majus*, *B. P.* 356. *M. capillaris*, sive *Adiantum aureum majus*, *Ger.* 1559. *Adiantum aureum majus*, *R. H.* 123. *Polytrichum vulgare & majus*, capsula quadrangulari, *C. Giff.* *R. Syn.* 50. *M. capillaceus major*, pediculo & capitulo crassioribus, *T.* 550. Great Golden Maiden-hair, or Goldilocks.—This is commended for the pleurisy, scrophulæ, baldness, &c.

3. Muscus clavatus, *Lycopodium offic.* Muscus terrestris clavatus, *B. P.* 360. *M. clavatus*, sive *Lycopodium*, *Ger.* 1562. *R. H.* 120. *Lycopodium*, *Tab.* 814. *R. Syn.* 107. *M. squamosus*, vulgaris repens clavatus, *T.* 553. Club-moss, or Wolfs-claw.—Which is commended for the plica polonica, gout, gravel, epilepsy, &c.

4. Muscus pyxidatus *offic.* & *Ger.* 1560. *M. pyxiodes*, terrestris, *B. P.* 360. *M. pyxidatus*, *R. H.* 113. *Lichenoides*, tubulosum pyxidatum, cinereum, *C. Giff.* 204. *R. Syn.* 68. Cup-moss, or Calice-moss.—Said to be a remedy for the chin-cough; and called a specific for it by *Ger.* and *Willis*, *R. Syn.* “The powder of Cup-moss, given to children in any liquor, for certain days together, is a most certain remedy, against that perilous malady, called the “chin-cough.” *Ger.* 1560.

5. Hepatica, *Lichen offic.* *Lichen petræus latifolius*; sive *Hepatica fontana*, *B. P.* 362. *R. Syn.* 115. *L. petræus stellatus*, *C. B. R. H.* 125. Star Liverwort (*Dale*) or Common Liverwort.—This is reckoned good for the jaundice, dropsy, phthisis, &c.

6. *Lichen cinereus terrestris offic.* *Lichen terrestris cinereus*, *R. H.* 117. *Lichenoides pellatum terrestre cinereum majus*, foliis divisis, *C. Giff.* 208. *R. Syn.* 76. Musco-fungus terrestris latifolius cinereus, *Hepaticæ facie*, *H. Ox.* iii. 632. t. 7. f. 1. *Lichen pulmonarius saxatilis*, rufescens; superne planus, inferne reticulatus, *T.* 549. *Hist.* 483. Ash-coloured Ground Liverwort.—



This is said to be a specific remedy for the bite of a mad dog. Vide *Phil. Trans.* No. 237. p. 49. The pulv. antilyssus *Pb. Lond. Vet.* was R. Pulv. lichenis cin. ter. & piperis nigri āā p. æq. M. & f. pulvis. But if this be a real remedy, and the lichen the specific, why is so much pepper used? The *Pb. Nova* makes it with lichen. p. ij. and piperis p. j. because the former was too hot. *Pemb. Disp.* 309. Ought it not to be still very hot with so much pepper in it? Is most to be expected from the lichen, or pepper?—If either receipt ever cured the hydrophobia, I would attribute the effect more to the pepper than to the lichen.

## L E C T U R E XXXVII.

### On Various Roots.

#### A C E T O S A.

##### S E C T. I.

**A** Cetosa, Acetosa pratensis, Oxalis *offic.* Acetosa pratensis, *B. P.* 114. *H. Ox.* 2. 582. *T.* 502. Oxalis, *Dod.* 648. Oxalis, five Acetosa, *Ger.* 396. *O. vulgaris*, folio longo, *J. B.* 2. 280. *A. vulgaris*, *Park.* 742. *R. H.* 178. *Rumex foliis oblongo-sagittatis*, *F. L. H. Cliff.* 139. *Rumex foliis oblongis, sagittatis, foemina.* Wild or Common Sorrel. Of which radix folia & semen are in use.

The fields and meadows every where abound with sorrel. It flowers all summer. The seed ripening successively, and not at the same time, is difficultly gathered. The root is good at any time, summer or winter.

The root is fibrous of a reddish-brown colour, or yellowish; of a bitterish subastringent taste; and no smell. The seed is small, three cornered, smooth and brown, and fourish. The leaves very acid, and a little styptic. — Oxalis ab οξος acetum, unde acetosa.

*Dioscorides* has five different lapatha, viz. Ὀξυλαπαθον, κηπειυτον, ἀγριον, ὀξαλις & ἱππολαπαθον, l. 2. c. 140. *Pliny* mentions a lapathum sativum sylvestre, which he calls oxalis, oxylapathum, hydrolapathum, hyppolapathum, & bulapathum, l. 20. c. 21. But whether our acetosa is their oxalis, is uncertain: if it be the oxalis, it is properly enough called rumex.

##### S E C T. II.

The root and seeds are subastringent, antiseptic and vulnerary. The leaves quench thirst, correct putrid and rancid acrimony, and by that means cool. They are commended internally in bilious and ardent fevers, putrid scurvies, &c. and externally in cataplasms, as suppurative.

“ *Officinalia*

“ Officinalia exhibent usui pharmaceutico folia, radices, & semen. *N. B.*  
 “ Radices asservantur excorticatæ. *Vires.* Cardiaca imprimis est, & hepatica.  
 “ Frigefacit & siccant. 2. Aperit, resistit putredini, appetitum excitat, cho-  
 “ leram reprimat, sitim sedat. Unde in febribus simplicibus usitatissima est,  
 “ præcipue autem usu interno, hinc & externo adhibita. *Præparata* 1. Con-  
 “ serva foliorum. 2. Aqua destillata, ex foliis. 3. Succus ex foliis expressus.  
 “ 4. Syrupus e succo. 5. Conserva foliorum.” *Schroder.* p. 525.

1. The taste of the root is (not acid as *Matthiolum* would have it; neither very bitter, as in *T. Hist.* nor very astringent, as in *J. B.* and *Albin. M. S.* but) only a little rough, leaving a gentle dryness in the mouth, (“ Radix sa-  
 “ poris amari & styptici.” *Geoff.* iii. p. 24, 26.) and bitterish: the seed is sub-  
 acid and soft: the leaves are rough and very acid. Hence they differ in vir-  
 tues. — 2. A solution of green vitriol does not turn infusum radices black, or  
 purple, but gives it a beautiful green colour. The seed has no effect on that  
 solution. — 3. The essential salt foliorum is said to flash in the fire (*detonner*  
*sur le feu*) and to emit an urinous spirit, dissolved in ol. tartari p. d. and con-  
 sequently to contain sal ammoniac and nitre. Vide *T. Hist.* p. 2. But their  
 acidity and roughness sufficiently explain and confirm their virtues. *N. B.*  
 Vegetable acids are much milder and safer than the mineral, being easily  
 changed by the vis vitæ and animal juices into a neutral nature, and rendered  
 thus attenuating diuretics, as well as antiseptic, acting on our juices as well  
 as being acted on by them. Hence they are useful in scurvy, &c. But *ubi*  
*natura languet* more acrid and stimulating substances are well conjoined with  
 them. Hence, as *Bartholine* writes, sorrel and scurvy-grass mixed were of  
 great use to the Dutch in Greenland when affected with the scurvy. Vide *R. H.*  
*Linnaeus* says there is no plant better known to the Laplanders than sorrel.  
 “ Nec ullum vegetabile in Lapponia crescens, cibos Lapponum ingredi scio,  
 præter hanc & angelicam, si baccas excipiamus.” They call it Juemo, of  
 which they prepare their Juemomelke; vide *Fl. Lap.* p. 93. where we find the  
 manner how it is used. He says they are as little troubled with the scurvy in  
 Lapland, as with the heat of the sun in the middle of winter.

“ Succus acetosæ recens, solutionem plumbi in aceto præcipitat. . . Folia  
 “ & radix expressa dant succum vino rubro simillimum . . . decocta etiam  
 “ cum aqua simplici, post relinquunt liquorem rubicundum vinosum, saporis  
 “ suavis & subacidi. Unde *Platerus* l. 2. obs. p. 320. quendam phreniticum,  
 “ vinum postulantem decepit, decocto radices acetosæ; semen ejus idem præ-  
 “ stare potest.” *Etmuller. Coll. Pharm.* p. 505. There are in *Geoff. M. M.* iii.  
 p. 24. three analyses, viz. foliorum, radicum, & seminum acetosæ, which  
 seem to differ from one another, even more than these parts do; as also from  
 the analyses acetosæ rotundi-foliæ hortensis, *B. P.* which in my opinion, as  
 well as some other species acetosæ, may be indifferently used with the acetosa  
*offic.* as may also the acetosella, *lujula, offic.* id est trifolium acetosum vulgare,  
*B. P.* 330, oxys flore albo, *T.* 88, Wood-sorrel: which is retained in the  
*Pharm. Lond. Nova* nomine *lujulæ*, though the acetosæ are excluded. “ Tri-  
 “ folium acetosum, Calabris Juliola, ridicule barbari corrumpere in alleluja.”  
*Scaliger. B. P.* 330. Of alleluja, also *lujula* is corruptly formed. Vide analysin  
 hujus etiam *Geoff.* iii. 749. “ Sapore & viribus cum acetosa convenit,” says  
 he justly, attributing to it also a sal essentialis nitroso-ammoniacali similis.



## S E C T. III.

The roots may be used in decoction to ounces; as may also the seed, now left out of the *elect. Diafcond.* The leaves are more used in sallads than any other way. We have a conserva lujulæ. "Riverius observationem proponet de ganglio in genu resoluto, sine suppuratione, cataplasmate ex foliis acetosæ sub cinere coctis, & cineribus permistis, supra tumorem admoto." *Geoff.* iii. 31.

## A C O R U S.

## S E C T. I.

Acorus, Acorus verus, Calamus aromaticus *offic.* Acorus verus, five Calamus aromaticus officinarum, *B. P.* 34. *Theat.* 626. *H. Cliff.* 137. A. verus, officinis falso Calamus, *Ger.* 62. A. verus, five Calamus aromaticus vulgaris, multis acorum, *J. B.* ii. 734. Typha aromatica, clava, rugosa, *H. Ox.* iii. 246. Sweet-smelling Flag, or Calamus.—This is a long jointed spongy root, brownish without, whitish within, of a hot aromatic bitterish taste, and fragrant spicy smell.—It grows in rivers and standing waters in several places of England. The canals in Holland are full of it. It thrives well also in gardens, but never flowers with us. What is used at London is mostly imported from abroad, *Mill. Bot.* 13. It produces its catkins in July and August. The root is good at any time, but best in autumn. Acorus or acorum, Gr. ἀκορος, ἢ ἀκορον, from κορα pupilla, because "Succus ejus ea quæ pupillis officunt, caliginemque offundunt, discutit." *Dioscorid.* l. i. c. 2. p. 6. It is not the calamus odoratus or aromaticus; but probably the acorus antiquorum. Vide *Dioscorid.* l. c. & *Plin.* l. 25. c. 13. p. 645.—"Acorus verus, five calamus aromaticus radice tenuiore." *H. L.* 9. "Omnibus partibus convenit cum Europæo, excepta sola radice, quæ tenuior est, & compactior, superficie crebrius geniculata, odore & sapore gratiore. Sponte luxuriat in Malabara & insula Zeylan unde a me an. 1695. ad Cl. D. Arnoldum Syen M. & Bot. P. transmissus, & in hortum plantatus, in hunc usque diem lætissime viret." *H. L.* 9. It was there in *Boerhaave's* time.

## S E C T. II.

It is a stimulating aromatic, diaphoretic and carminative; called stomachic; and commended in cold and phlegmatic indispositions of the stomach and other viscera, and obstructions thence arising.

"Stomachicus est, calf. & siccat in princip. 3, partium tenuium est, attenuat aperit. *Ufus* præcipue in obstructionibus mensium, lienis & hepatis, in dolore colico. *Præp.* 1. Aqua ex radice. 2. Acorus conditus vulgaris. 3. Confecta radix. 4. Oleum stillatitium. 5. Electuarium diacorum. 6. Extractum radicis." *Schrod.* p. 526.

Con-

Concerning aromatics I shall here observe, 1. That they stimulate or increase motion, (and consequently heat) and the fluid secretions: to say nothing of the agreeableness of the sensation many of them excite in the stomach, which refreshes the spirits as it were in a moment. — 2. That they rather resist and retard, than increase and forward putrefaction, and fermentation; and so correct in some degree both acid and alkaline acrimony. Yet since they heat, they are more opposite to such putrescency, as is the consequence of stagnation, and to which the weaker constitutions are most subject, in some chronic diseases: Hence of great use in gangrenes and mortifications. — 3. That they generally abound with essential oil and salt; which in some are so united as to produce a neutral sal volatile oleosum, both very penetrating and friendly to our nature. In essential oils are lodged the proper spirits of aromatics, to which are owing their specific virtues in a great measure, whereby they differ from one another in kind as well as in degree. — The aroma acori is very fixed, that is, does not fly off in drying. It will keep good many years: hence its effects are lasting; not only such subtile parts of it as enter the lacteals acting agreeable to its nature in the habitus corporis; but also the more fixed exerting their force through the whole length of the intestinal tube. On this account, if taken in substance, it becomes so useful in diseases a phlegmate, flatu, laxitate stomaci & intestinorum. It is recommended by the ancients for gripes, pains in the bowels, spleen, strangury, female diseases, the bites of serpents, as an antidote to poison, &c. The Turks are said to eat it in the morning to prevent infection, and the Tartars commonly to macerate it in their drink. “In catarrhis exsiccandis, præcipue convulsivis, inque apoplexia ipsa magnam habet laudem condita radix.” Vide *R. H.*

“Radix acori non mediocrem olei essentialis copiam distillatione suppeditat; & nonnihil spiritus volatilis urinosi: unde liquet sale volatili aromatico oleosoturgere.” *Geoff. ii. p. 4. Who distilled it?*

### S E C T. III.

It may be given in substance to ʒj. or more. But on account of its bulk it is best used in infusion to ʒiv.—It is an ingredient in the tinctura ad stomachicos, tinctura salutifera, and pulv. ari compositus. *Ph. Ed. edit. 1744.*

Such value does our College put on this root; which (and perhaps for that very reason) is not in one composition, except the mithridatium and theriaca, of the *Ph. London*, edit. 1746. For it is thrown out of the pulvis ari compositus, and the acorus adulterinus substituted in its place. “The yellow water-flag has hitherto had in this medicine the name of common or vulgar acorus, an appellation so little used among the botanists, that our apothecaries have in general been at a loss, what was intended by it. But as this medicine was originally the invention of a German physician, *Birckman* (see *Quercet Ph. Dog. p. 378*) under whose name it is inserted in the Pharmacopœia of Augsbourg, so in that Pharmacopœia (in the catalogue of simples), acorus vulgaris is explained to be the acorus palustris, which is the gladiolus or yellow water-flag.” *Pemb. Disp. p. 310.*

*N. B.*



N. B. 1. The *gladiolus luteus* is called by some botanists, *acorus* simply; but most add *adulterinus luteus*, *falsus*, *nostras*, or *vulgo officinarum*. I know none who call it *acorus palustris*. — 2. *Zwelfer*, in his *animadversions* on the *acorus conditus vulgaris*, explains the *acorus* there to be the *calamus aromaticus*; does he not then understand the same in the *pulv. stomachicus Birckmanni*? Vide *Ph. Aug.* p. 253, & p. 267. It is true that in the *Taxa seu Pretium Medicamentorum*, annexed to the *Ph. Aug. renovata & aucta Augustæ Vindelicorum* 1684, in folio, there is an *acorus vulgaris* distinct from the *calamus aromaticus*, as well as from both the *galangas*; but it is not explained what it is, and there is no other catalogue of simples in that edition. It is also true that here, in the directions for making the powder, the *acorus* is explained to be the *acorus vulgaris seu palustris*, p. 181: while in the *Diacorum Mesues* there is no *acorus*, but only *calamus aromaticus*; though in *Zwelfer's* edition, which is 12, if not 32 years older than the *fol.* edition, this simple is named *acorus seu calamus aromaticus*. But still this does not determine it to be the *gladiolus luteus*, since the *acorus verus* is as much a *planta palustris* as that is, and in Holland at least more common; especially since in the oldest German Dispensatorium, viz. that of *Valerius Cordus*, set forth by public authority, an. 1542, there is only one *acorus*, and that once and again declared to be what is commonly, though falsely, called *calamus aromaticus*. Vide *Diacorum*, p. 34. *Theriaca*, p. 105, & *Mithridatium*, p. 117. Here are both the *galangas* but no *gladiolus luteus*, among the simples. And it is certain that the *acorus adulterinus* was mistaken for the true, and on that account used for it, till the famous *Augerius Busbequius* and *Carolus Rymius*, the Emperor Maximilian the II<sup>d</sup>'s ambassadors at the Port, sent it to Vienna. Vide *Dod.* p. 250. Whether it was as common before, as it is now in many places, and only not known to be the true *acorus*, I shall not determine: but so soon as it was known, it generally resumed its proper place in all the shop compositions, as well as that of the *calamus aromaticus*. I know the *galanga major* is the *acorus* of *Fernelius*, &c. and was so called in the London shops not long ago, and was used for it in this powder. Vide *Mill. Bot.* p. 206. But—3. Granting that *Birckman*, *Quercetan*, *Pharmacop. Augustana*, and *Londinensis*, designed the water-flag by the name of the *acorus vulgaris*; since it is plain that the *pulv. ari compositus* has been long made without it, in Britain, France, &c. and its virtues well known; since the preparation of the *arum* divests it of its acrimony, (vide *Ph. Aug. Zwelf.* p. 407.) and was with that intention ordered, before it was to be used, in this composition; and since the *acorus adulterinus* is as acrid as the *arum*, and no previous preparation ordered for it; is it not plain that Mr. *Birckman* has believed it to be the *acorus* of the ancients, or to have the same virtues, though they are *toto cælo* different; and that therefore substituting the *acorus verus* in place of the *adulterinus* better answers his intention, and is a real improvement of the medicine? In reality it owes more to it than to all the three roots ordered his way: for the prepared *arum* is spoiled *arum*; the *saxifrage* in drying soon loses all its virtues also; the water-flag while recent is an inflaming and dangerous cathartic, and when this volatile acrimony flies off, it becomes styptic like alum, which quality surely the author did not design to give his powder. In a word, if in place of all the roots, there were taken as much *acori veri*, the powder would answer the  
author's

author's intention better, than when it is made his way; and galanga major would be no bad succedaneum to the acorus if wanted. How many blunders are occasioned by ignorance of the simples!

## A L L I U M.

## S E C T. I.

*Allium offic.* *Allium sativum*, B. *Plin.* 73. *H. Ox.* 2. 387. *T.* 383. *Allium vulgare* & *sativum*, *J. B.* 2. 55. *Allium*, *Dod.* 682. *Ger.* 178. *Park.* P. 513. *R. H.* 1125. *Allium radialis bulbo* multipartito, capitulo bulbifero, foliis linearibus, *H. Cliff.* 137. Common or Garden Garlic.—This is a bulbous root, consisting of several cloves, covered with a white skin, of a hot, biting (or acrid) penetrating taste, and strong unpleasant smell.

It is cultivated perhaps every where; for where it grows naturally is not known. ("Habitat in Sicilia." *Lin. Sp. Pl.* 297.) In Gascony and Spain it is eaten with bread: and is much used, by way of seasoning, even amongst the delicate, in India, Egypt, and America, as well as in France. It is the *ελεφονδον*, of the Greeks, and *Allium Latinorum*. Vide *Bod.* in *Theoph.* p. 788. *Dioscorid.* l. 2. c. 182. p. 150, & *Plinium* variis in locis. "Allium, cæpasque inter Deos in jurejurando habet Ægyptus." *Plin.* l. 19. c. 6. p. 499. In Egypt, says *Juvenal*,

"Porrum & Cepe nefas violare, ac frangere morfu,  
"O sanctas gentes, quibus hæc nascuntur in hortis  
"Numina! . . . ." *Sat.* 15. v. 9, &c.

"The water in which garlic is steeped breaks drinking glasses that are washed with it, as does also the water with which parsley has been washed, which can be occasioned only by the most penetrating quality of its salt," says *Lemery*, *Diët.* 18. *Credat qui vult.*

## S E C T. II.

Garlic contains an acrid alkaline volatile spirit; hence it is a stimulating antacid, attenuating diaphoretic and diuretic. It is called pectoral, carminative and alexipharmic; and commended internally in coughs, asthmas, colics, nephritic pains, &c. and externally as a sinapism, or attrahent.

"Calf. & sicc. 4. incidit, aperit, discutit, alexipharmacum est. *Ufus præcipuus* internus & externus in colica flatulenta, lumbricis, peste (cum aceto) tussi, calculo. Extrinsicus in scabie, urinæ obstructione, apoplexia uterina, (umbilico inungitur succus) tussi (inungitur plantis pedum cum axungia porcina.) *Præparat. electuarium de allio.*" *Schrod.* 530. — On this I observe, 1. That how acrid soever the taste of raw fresh garlic is; yet roasted or boiled it becomes very mild, though still alkaline and putrescent. But fully dried it is useless altogether; turning to thin light skins, in weight not bearing the proportion of 1 to 100. — 2. That externally applied it inflames and ulcerates the



the skin : hence it is a strong attrahent, and as such much used by *Sydenham* by way of cataplasm to the feet in the small-pox. — 3. That chymically analysed it yields a urinous volatile spirit, and salt ; little, if any, acid ; and some fixed but alkaline salt ; with some earth. Vide *Boerb. Chem.* ii. p. 140. Yet according to the analysis in *Mr. Geoff. rad. allii* lbv. gave humorum lbij. ℥xv. ʒiv ; (all of which were acid more or less, the very last ℥v. of it being subacid as well as urinous) and only salis volatilis ʒß. — 4. That cows in woods often feed on the all. sylvestre latifolium, *B. P.* or *Ramsons*, and then their milk and butter taste strongly of it. “ Allium gallinis & altilibus cum escâ objectum, “ saporem & odorem suum in eorum carne & ovis prodit.” *Geoff.* iii. 62. *Bennet* observes (in *Theat. Tab. exercitat.* 29.) an issue will smell of garlic within three or four hours after a person has taken it. It will also thus communicate its smell to urine very soon. It is even said that a cataplasm of this root applied to the feet, makes the breath smell of it. Its smell remains longer with one who eats it, than the smell of onions and leeks. — 5. That it is commended internally by *Dioscorides* for the teniæ, venomous bites, hoarseness, coughs, obstructed urine, &c. and externally for many diseases of the skin. — “ Vim acrem obtinet, excalifacit, mordet, flatus pellit, alvum turbat, stomachum excitat, sitim gignit, inflammationemque facit, summam corporis cutim exulcerat, & oculorum aciem esu hebetat.” *Dioscorid.* l. c. “ Allium flatum & caliditatem circa thoracem facit, capitis gravitatem & anxietudinem parit ; & si quis alius dolor fieri consueverit, eum graviorem reddit ; urinam autem ciet, eaque dote est præditum. Optime autem editur ei qui ad computationem comparare volet, aut jam ebrius est.” *Hippocrat.* lib. de Victu Acut. *Foes.* p. 404. “ Allia, inquit *Platerus*, in hydromelite decoctum, & ad ℥ij. vel paulo plus exhibitum, potenter sudores & urinas elicit, in peste laborantibus. Hungari, inquit *Bockelius*, pestis tempore non habent certius remedium quam allium. Allii succus potus, ait *Spigelius*, hominem non modo turbat sed etiam interficit.” *R. H. — Verbo.* — Some make it flatulent, others carminative ; and both are right : some say it is hurtful in the plague, as *Diemerbroek* ; others beneficial : all are right, for certainly every strong medicine must be as hurtful in some circumstances as it is beneficial in others. — “ Ex allii bulb. mund. lbv. analysi prodierunt humorum lbij. ℥xv. ʒj, gr. xxiv : salis volatilis urinosi gr. xij : olei spissi ʒiiß. gr. xlii : carbonis ʒxij. ʒj, (unde cinerum ʒj. ʒj. gr. vi. & inde,) salis fixi salis ʒiv. gr. viij. & jacturæ in destillatione erant ʒij. gr. lxvi” See *Geoff.* iii. 61. Sed summa hic lbv. ʒj ; so that there were terræ ʒv. gr. lxx.

*N. B.* “ *Ceparum alb. mund. lbv. præbuerunt humorum lbiv. ʒviij. ʒij. gr. liv ; salis vol. urinosi ʒj. gr. xxxvi ; olei adiposi ʒij ; carbonis ʒij. ʒij ; (unde cinerum ʒij. gr. lxiv. & inde) salis fixi salis ʒj. gr. viij. & jactura in destillatione fuit ʒij. ʒvi. gr. liv.*” *Geoff.* iii. p. 280. Summa hic lbv. accuratè. So that there were terræ ʒj. gr. liv. He says also that cepæ rubræ gave only salis vol. ʒß. and olei ʒiiß.

As several species of the allium agree in virtues ; so also the cepæ and porra, used in the kitchens, are much of the same nature.

S E C T. III.

The dose is not determined. A single clove or ʒj. raw need not be exceeded. When decocted, or roasted well, I don't know how much may be taken. . . Raw garlic is an ingredient in the *sinapismi compositi Pb. Edinb.* and *syrupus ex allio*, & *oxymel ex allio*, seem to be now in vogue at *London*.

“Milites, nautæ & rustici crudas aquas, vel alimenta pravæ aut difficilis coctionis, allio corrigere tentant.” *Geoff.* iii. 62.

“In asthma and difficulty of breathing it is a very good medicine, the root being either preserved with sugar, or a strong decoction of it made into a syrup.” *Miller Bot.* p. 24.

*Syrupus ex allio Pb. Lond.* is thus prepared, “R Alii concisi lbj; aquæ bullientis lbij; macera in vase clauso per horas xii. & in liquore colato, dissolve saccharum (viz. ejus ʒlviii.) ut f. syrupus.” . . . Many reckon swallowing a clove of it at night almost a specific for colds.

A L T H Œ A.

S E C T. I.

*Althæa*, *Bismalva*, *Ibiscus*, *Malvaviscus offic.* *Althæa Dioscoridis & Plinij*, *B. P.* 315. *T.* 97. *Althæa*, *Ibiscus*, *Dod.* 655. *Ger.* 933. *A. vulgaris*, *Park.* 303. *R. H.* 602. *Syn.* 252. *A. five Bismalva*, *J. B.* 2. 954. *Malva sylvestris*, vel *palustris*, aut *Ibiscus*, *H. Ox.* 2. 523. “*Althæa five Malvaviscus Ang.*” *B. P.* *Althæa*, *foliis simplicibus, tomentosis*, *H. Cliff.* 348. *Althæa*, or *Marsh-Mallows*.

It grows in salt marshes, maritime and fenny places, in England, Holland, France, &c. flowering in July and August; and ripening the seed in autumn, &c. *successivè*.

*Althæa*, ab ἀλθες remedium: ἰβισκος, *Dioscoridi*: ἰβισκος, *Galeno*: hibiscum *Plinio*, who distinguishes it from *althæa*, though the former do not. “Pastinacæ simile hibiscum, quod melochen agriam vocant & aliqui pistolochiam, h ulceribus cartilaginis, & ossibus fractis medetur.” *Plin.* l. 20. c. 4. p. 513. “E sylvestribus (malvis) cui grande folium & radices albæ *althæa* vocatur, ab excellentia effectus a quibusdam aristalthæa.” *Ibid.* c. 21. p. 534.

It is called *althæa* says *Dioscorides*, διὰ το πολυαλθες καὶ πολυχρηστον αὐτῆς, a multiplici excellentique quam in methodo præstat utilitate, l. 3. c. 163. p. 239. Hence also *vismalva* and *bismalva*, *malvaviscus*, *malva-ibiscus*. It is supposed to be also the *hibiscus Virgilii*, *Ecl.* 2. v. 28. & *Ecl.* 10. v. 7. For all agree that it is the *althæa Dioscoridis* and *Plinii* l. c. though not the *althæa Theophrasti*, to which he gives florem μελανον, or as others read μελινον *nigrum vel mellinum*, which agrees better to the *abutylon Dioscoridis*. I do not find the name *althæa* in *Hippocrates*; but it is probably his *μαλαχὴ αἰγία πλατυφύλλος* (*de Morbis Mul.* l. 1. ed. *Foes.* p. 622. lin. 18.) since both *Dioscorides* and *Pliny* say the *althæa* is a species of the *malva sylvestris*.

VOL. I.

A a a

*Officinalia*



*Officinalia* sunt radices, herba & femina. The root is pretty large, long and branched, grey on the outside when dried, white within, of a soft viscous taste, and a little sweetish, without any remarkable smell. The leaves are large and hoary; and the seeds small and shaped like a kidney. The taste of all the parts of the plant is much the same: as are also the virtues.

## S E C T. II.

*Althæa* is emollient, antacid and anodyne; and hence of great use in all diseases from acrimony of the fluids, or from tension or rigidity of the fibres. It is recommended internally in hoarseness, coughs, asthmas, pleurisy, peripneumony, consumption, erosions of the stomach and intestines, heat of urine, gravel, &c. and externally as discutient, as well as maturating, in tumors.

“*Ufu*: folia, radix (collecta vere vel autumno) semen. Herba calida est & sicca (*aliis* humida) gr. i. rad. calf. in princip. 2. emollit, laxat, discutit dolores lenit, tumores maturat, acrimoniam mitigat & corrigit. *Ufus præcip.* in affectibus vesicæ, pulmonum, intestinorum, uteri, v. g. phthisi, tussi, raucedine, calculo, erosione vesicæ ac intestinorum, in duritie uteri, febribus, &c. Extrinsecus in tinea capitis (cum urina in lixivium cocta) in tumoribus maturandis, doloribus sedandis, in alvo lenienda, dolore nephritico mitigando, (in cataplasm. & clysteribus.) *Præp.* 1. Aqua ex foliis & floribus. 2. Mucilago ex radice cocta cum aqua. 3. Syrupus althææ *Fernelii*. 4. Ung. dialthææ simplex; & 5. Compositum.” *Schroder.* p. 530. & p. 620.

1. Every part of the plant abounds with a mucilage altogether without acrimony, on which all its virtues depend: this is easily extracted by water. It relaxes and lubricates the fibres, and adheres to them so as to defend them against acid substances. It inviscates and blunts acrimony in the fluids; whether alkaline or acid, putrid, rancid or muriatic. It mixes both with sulphureous and watery fluids: and is somewhat saponaceous, rather putrescent than acescent; and not unlike the natural mucus stomachi. The juice does not redden the blue paper. The infusion turns the solutio heliotropii a little red, but makes no change on the syrup. violarum: after standing some time it becomes fetid. The root is more mucilaginous than the leaves.—2. *Althæa* by a chymical analysis gives some urinous spirit, a good deal of oil and fixed salt, (of which in their natural state the mucilage is composed,) which the fire destroys. Vide *T. Hist.* 6. “Ex foliorum & summitatum recentium lbv. per retortam distillatis prodierunt humorum lbiv. ℥iij. ziv: salis volat. urinosi gr. lx: olei crassi ℥j. zviß: carbonis ℥vi. ziv. gr. xlviii; (unde cineres ℥iij. ℥j. gr. vii. & inde) salis fixi mere alcali ℥j. zj. gr. viii. (ergo terræ ℥ij). Jactura fuit ℥iv. Ex radicum corticum recentium lbv. prodierunt humorum lbiv. ℥v. ℥iij. gr. xxiii: olei adiposi aqua gravioris ℥j. ziv. gr. xvii: carbonis ℥v. zvi. gr. lxiv; (unde cinerum ℥iijß. gr. xx. & inde) salis fixi mere alcali zviij. gr. xlii; (ergo terræ ℥iijß. gr. i). Jactura in destillatione fuit ℥iij. gr. xl.” Thus *Geoff.* iii. 69. — 3. It is commended in a great many diseases, both outwardly and inwardly. “Hippocrates vulneratis sitientibusque defectu sanguinis, radices decoctæ succum bibendum dedit: & ipsam

“ ipsam vulneribus cum melle & resina, item contusis, luxatis, tumentibus,  
 “ & musculis, nervis, articulis imposuit: & asthmaticis ac dysentericis in  
 “ vino bibendum dedit.” *Plin.* l. 20. c. 21. p. 535. “ Decocta in aqua malsa  
 “ aut vino, aut per se etiam tusa, efficaciter imponitur vulneribus, parotidi-  
 “ bus, strumis, abscessibus, mammarum inflammationibus, sedis doloribus,  
 “ contusis, flatuosis tumoribus ac nervorum distentionibus: si quidem discutit  
 “ & maturat, aut rumpit, & ad cicatricem perducit. . . . Ipsius decoctum  
 “ facit ad vulvæ inflammationes, lochia præterea extrahens, succurrit & radi-  
 “ cis decoctæ succus ex vino potus dysuriæ, calculosorum cruciatibus, dysen-  
 “ tericis, ischiadicis, tremulis & ruptis. . . . Vis quoque semini efficax contra  
 “ dysenteriam, sanguinis per os rejectionem & diarrhæam. . . .” *Dioscorid.* l. 3.  
 c. 163. p. 239. “ Radices althææ acrimonia præditas esse arguit ab expe-  
 “ rientia D. Segerus. Ex applicatione enim cujus radice contusæ, & in aqua  
 “ simplici decoctæ, plurimæ pustulæ rubicundæ & dolorificæ, membrum  
 “ adeo exasperare, ut undique plane exulceratum apparuit; quod malum  
 “ empl. de spermate ranarum sanatum fuit.” *Ephemerid. Germ. An.* 9. & 10.  
*Obs.* 100. “ Mucilago althææ aqua rosarum extracta, eos dolores mitigat  
 “ illita, quæ arte a sinapismis & vesicatoriis excitantur, si hi nimis molesti  
 “ sunt.” (Sim. Pauli.) *R. H.* 602. “ It is probable that the matter retained,  
 “ through want of perspiration produced these pustles.” *J. Hist.* p. 8. The  
 root is considerably more mucilaginous than the leaves.

## S E C T. III.

It may be used in powder (or *farina*), infusion like thea, decoction, &c. ad libitum; ʒj. in substance is bulky enough for a dose. We have a syrupus de alth. and an unguentum dialthææ; though this may have no althæa in it, being made of the oleum mucaginum: (Vide *Pb. Edinb.* 119.) Which oil is also an ingredient in empl. diachylon utriusque.

Our present syrupus de althæa is less compounded than that was in edit. 1735, yet might now want the eryngium and parietaria without any injury to it. The syr. ex althæa *Pb. Lond.* is a syrupus *plane simplex*. We take too little of this root; they too much. Of what consistence will rad. althæa, though recent, lbj. decocted in water to liquoris lbiv. be? Will it dissolve sacchari purissimi lbiv? Some caution against taking more than rad. ʒij. or iij. for decocti lbj, least it render it too viscid. I have ordered rad. ʒj. for colaturæ lbj. without rendering it too viscid, when long decocted. But what sort of mucilage a quadruple proportion (or rad. p. i. to aq. p. iv.) will produce, I have not tried. “ In this syrup the decoction being largely charged with the  
 “ ingredients, the sugar will scarce unite uniformly with the heat of a bal-  
 “ neum only; and therefore it is requisite that the quantity of liquor be  
 “ somewhat greater in proportion to the sugar, than according to the general  
 “ rule above, that while the surplus is wasted by boiling, that greater heat  
 “ may unite the sugar more perfectly.” *Pemb. Disp.* 292. This syrup is taken from *Riverius Prax.* l. 14. c. 1. p. 348. b. as the Committee own. In him it is thus, “ R Rad. althææ ʒiij: coquantur ad lbj. in colatura dissolve sac-  
 “ chari lbss. Utatur frequenter.” But was it necessary to retain his propor-



tions of the water and root, and yet take double the sugar? Did he not use the French pound of 16 ounces? However,

Preferves, sugars, tablets, may be made of althæa. “R Rad. althææ ʒj. “ sacchari candi ʒß. F. pulvis optimus in dysuria, tussi, & asperitate faucium.” *Herman. M. S.* R Rad. alth. ʒj. glycyrrhizæ & florum papaver. rhæad āā ʒij. coque in aqua f. q. ad colaturæ lbj. capiat ʒij. omni hora in ardore urinæ a calculo, &c.

## A N C H U S A.

### S E C T. I.

*Anchusa*, *Alcanna*, *offic.* *Anchusa* puniceis floribus, *B. P.* 255. *Anchusa* *Monspeliaca*, *J. B.* 3. 584. *R. H.* 496. *A. minor*, seu *Alcibiadion*, vel *Onochiles*, *Lob. Adv.* 248. *A. Alcibiadion*, *Ger.* 800. *A. minor* purpurea, *Park.* 517. *Anchusæ* foliis, lanceolatis, spicis imbricatis, secundis, varietas, *H. Cliff.* 46. *Buglossum* perenne minus, puniceis floribus, *H. Ox.* 3. 438. *B. radice* rubra, five *Anchusa* vulgatioꝝ floribus cæruleis, *T.* 134. *Alkanet.*—This is a pretty long root, of a dark purplish red colour on the outside, and white within; without taste or smell.

It grows on the more barren hills about Montpellier, and other places in Languedoc; in Provence, &c. “These roots with us lose their fine colour.” *Mill. Diæ.* I had it once pretty red: but generally it has little of the colour, more than common bugloss. The bastard alkanet, or lithospermum arvense, radice rubra, *B. P.* 258, which grows among corn, has a red and dying root, and resembles more the anchusa, though smaller, than what we raise for it from seed. “The anchusa grows in Languedoc, Provence, and other sandy places.” *Lcm. Diæ.* 28. “In collo arenoso inter Gramontiam sylvam & Castrum novum, non procul Monspelio spontaneam observavimus.” *R. H.*

*Dioscorides* l. 4. c. 23, 24, 25. p. 253. has three anchusæ, of which this is thought, by some, to be the second, called also *Alcibiadion* seu *Onochiles*. For the etymons and what the antients say of them, you may consult *Bod.* in *Theoph.* p. 835—38. *Alcanne* or *Elhanne* is said to be Arabian, though this is not the plant they called so; which is supposed to be the *Ligustrum Ægyptiacum* latifolium, *B. P.* 476. *i. e.* *Lygustrum Ægyptium*, *Cyprus Græcorum*, *Elhanne Arabum*, *J. B.* i. p. 541. with an infusion of the leaves whereof the Egyptian women dye their nails yellow, (vide *Alpin. Pl. Æg.* p. 44.), as some ladies redden their cheeks with our anchusa. “Exhibet Huso officinis Ichthio-collam, Arabice Alkanna, Anglice Iſinglaſs.” *Schroder.* 853. “*Anchusa*, “ ab αγγω strangulo, suffoco, quod serpentes strangulet necetque. Hac vi-  
“ pollere est auctor Nicander, Dioscorides, Plinius, Galenus, &c.” *Bod.* l. c.

### S E C T. II.

It is diluent and antacid like buglossum; is called astringent and vulnerary; and commended for diarrhœas, wounds and ulcers. But it is little used, except for its colour.

“Vim.

“Vim habet adstringentiam, unde valet in excretionibus nimis; ulcera etiam  
“detergit & siccant.” *Nucl. Belg.* 21. *Dale* gives it a hotchpotch of virtues  
from the ancients and moderns. It is not in *Schroder*, nor in *Mr. Geoffrey*,  
though there are two anchusæ in the Paris Dispensatory. Some give it also the  
virtues of the *Elhanne Arabum*. *Parkinson* highly commends an infusion of  
it in petroleum for fresh wounds; which is also mentioned in general, in *R. H.*  
whom *Dale* quotes. It gives a good colour to oils, lard, butter, wax, oint-  
ments, without altering their nature, if assisted by a gentle heat, and kept in  
digestion for some hours. Or it may be decocted in butter and wine for a cos-  
metic. It was an ingredient in the ung. potabile rubrum, *Ph. Aug. Zwelf.*  
p. 361. Would it not do better in bals. locatelli than either santalum ru-  
brum, or sanguinis draconis?

For it is almost insipid, only a little sweetish like sarsa, not at all astringent  
to the taste; nor does it turn a solution vitrioli viridis black. It is a species  
buglossi; if not, according to *Linnaeus*, only a variety of it. *N. B.* All the  
anchusa that I have seen has the colour only on its surface, and so superficial  
that I have sometimes suspected it as artificial. “Sapor buglossi non ingra-  
tus, acrior tamen & siccior.” *J. B.* “Saporis sunt subausteri.” *Nucl. Belg.*  
“Saporis paululum adstringentis, odoris nullius.” *Alb. M. S.* “It contains  
“much oil and fixed salt.” *Lem. Dict.* 28. Where there is an account of an  
*Orcanette de Constantinople*, which I have never seen.

## A N G E L I C A.

### S E C T. I.

*Angelica offic.* *Angelica sativa*, *B. P.* 155. *J. B.* 3. 2. 140. *R. H.* 434;  
*Ger.* 999. *Park.* 939. *H. Ox.* 280. *A. major*, *Dod.* 318. *Imperatoria sativa*,  
*T.* 317. *Angelica foliorum impari lobato*, *F. Lap.* 67. *H. Cliff.* 97. Garden  
*Angelica*.

“It grows wild, without planting, in Norway, and in Iceland, where it  
“grows very high. It is eaten of the inhabitants, the bark being peeled off,  
“as we understand by some that have travelled into Iceland, who were com-  
“pelled sometimes to eat hereof for want of other food, and they report that  
“it hath a good and pleasant taste to them that are hungry.” *Ger.* l. c. “In  
“Scandinavia, Norvegia & Alpibus excelsis, perpetua nive tectis, sponte ori-  
“tur.” *H. Ox.* l. c. “Ubique per omnes alpes Lapponiæ, juxta rivulos, in  
“convallibus, præsertim nemorosis humidis & mucosis, vulgaris est, & fa-  
“cile maxima omnium herbarum alpinarum. Extra alpes nullibi unquam  
“occurrit, nisi forte ad ripas fluviorum alpibus proximas. . . Radix primi  
“anni, & antequam caulescat planta, exsiccata, laudatur a Lapponibus, ut  
“optimum sanitatis in feros annos tuendæ remedium. . . Caules sunt Lap-  
“ponorum deliciæ. . . detracto cortice, rapæ vel pomi instar, crudi edun-  
“tur, & quidem summo cum appetitu. . . Gratus hic Lapponibus cibus nec  
“nobis displicebat, leviter enim amarus, & simul aromaticus est, imo &  
“gustu & ventriculo arridebat.” *Vide F. Lap.* p. 67—70. where the angelica  
and archangelica are shown to be one and the same plant: and *J. B.*’s and *R.*’s  
dubia:



dubia are solved. It is cultivated in gardens in Britain, Holland, Germany, France, Spain, &c. flowering and bearing fruit, if permitted, the second year, when it sows itself plentifully. The root is best in the autumn of the first year, or before it shoot; it keeps well. The seed soon decays.

The root, leaves, stalk and seed are used. "*Angelicæ radix ab Hispania, caulis, folia, semen.*" *Pb. Lond.* p. 4. Why from Spain? "*Angelica roots are very efficacious carminatives; especially those from Spain, which are wonderfully discutient and of a fragrant flavour.*" *Quincy, Pb.* p. 80. So are those in our gardens, as well as those from Lapland. "*Eruitur radix tertio a satuo anno.*" *Matth.* 814. "*Radix triennis optima est.*" *Herm. M. S.* By often cutting the plant, it may be kept from seeding, and preserved several years. "*Præcox est planta, mensibus Aprili & Maio florens; Junio & Julio semen perficiens.*" *H. Ox.*

The root is large, somewhat spongy, brown on the outside, white within; of a very aromatic and sweet taste at first, then agreeably bitter; and of a fragrant smell, perfumed as it were with civet. The seeds are pretty big, furrowed on one side and plain on the other, and straw-coloured: but neither seed nor herb are so aromatic and pleasant as the root.

*Lemery* prefers the Bohemian angelica to the English; *Savary* to the English and Dutch. "*Radix quæ ex Hollandia adfertur, est multo præstantior (Bruxellensi) nostrate.*" *Nucl. Belg.* p. 22. *Simon Pauli* thinks the Swedish much better than the Bohemian. In my opinion none of them can be more aromatic than our own. "*Radix sicca adfertur ex Bohemia, ex Alpibus, Pyrenæis, nec non etiam ex Arvernæ montibus. . . Simon Pauli vir sane doctus & ingenuus, quasdam angelicæ Scandiacæ radices, jam ab aliquot annis lectas & exsiccatas, asservasse, tanta fragrantia præditas narrat, ut Bohemicas, odore & sapore aromatico ac suavi, longe adhuc superarent.*" *Geoff.* ii. p. 7. *Vide Sim. P. Quad.* p. 200. *N. B.* I have some of our own growth to 10 or 12 years old, and worm-eaten, which is more agreeably aromatic, sweet and fragrant than that taken up last autumn, which is more bitter, and smells stronger. Hence we see the reason why authors prefer that of foreign countries to their own; though it is a bad one. "*Exotica haud temere indigenis antehabeto, &c.*" *Vide Gaub. Meth.* p. 8.

Angelica was probably unknown to the ancients; being a native of a more northern climate. "*Angelica quam aliqui ad Smyrnum, alii ad Laserpitium sive Silphium Cyrenaicum referunt; etiam S. Spiritus radix dicitur, vel a radicis suavissimo odore, vel a facultate singulari, qua contra venena valet.*" *B. P.* "*Pomposum hoc nomen accepisse ab Agrytis, qui & radicem Spiritus Sancti vocant, dubium apud me non est.*" *Hoffman.* p. 103.

## S E C T. II.

Angelica is an acrid aromatic attenuant, diaphoretic, cordial, carminative, antiseptic, cephalic and alexipharmic; and commended internally in female diseases, mensibus lochiisque obstructis, partu difficili, suffocatione uteri, poisons, venomous bites, malignant diseases, the pestilence not excepted, &c.  
and

and externally as discutient and anodyne, for inflammations, gangrenes, tooth-ach, &c.

“*Offic. nat.* Radix colligenda initio veris. *Vires.* Bezoardica & cordialis nobilissima est. Calfacit 3. siccatur 2. aperit, attenuat, sudorifica & vulneraria est: menses movet, foetum expellit, suffocationi uteri maxime conducit, malignis morbis, venenis, ipsique pesti medetur. Venena omnis generis per sudorem pellit; adeoque usui interno præcipue, tum & externo adhibere apta est, v. g. ad arcendam pestem, (in amuleto, in sublingualibus) ad morsum canis rabidi, (in cataplasmate, &c.) Dosis ʒj. *Præp.* 1. Aqua ex integra planta. 2. Succus ex radice. 3. Extractum ex sp. vini; dosis a ʒiʒ. ad ʒʒ. 4. Radix condita. 5. Oleum stillatitium. 6. Balsamus 1. a. cum oleo nucistæ præparato fit. 7. Sal. com. ex cineribus.” *Sckrod.* p. 534.

1. The taste is very hot, diffusing a glowing warmth through all the mouth, the lips themselves being sensibly affected with it: yet it is sweet and agreeable, the very bitterness improving as it were the flavour. The pungency of it will be felt more or less for some hours: the bitterness not many minutes. Some think it smells of musk. “Saporem radix, semen & folia habent acrem, fauces scarificantem, subamarum, tenuem & aromaticum, odorem, similiter acrem, vehementem medicatum, atque aromatum similem. Efficacissimus omnium partium liquor est, mox semen, deinde radix; flores & folia postremum locum tenent.” *E. Cordo.* “Radix gustus admodum calidi & aromatici, acris & amari, odoris suavis; succum ex incisione remittens croceum, ejusdem saporis.” *J. B. l. c.* “The whole plant is of an excellent pleasant scent, and taste very comfortable, being not fierce or sharp, but rather sweet, and giving a most delicate relish when it is tasted or used: the leaves be the weakest, and some hold the seeds to be next, and the root to be the strongest.” *Park. l. c.* “All the plant has an aromatic smell and taste inclining to that of musk.” *Lem. Diet. 30.* “Odoris & saporis est aromatici, acris, calidi, moschati, præcipue semina ejus & radix.” *Nucl. Belg. 22.* “Radix . . . odore fragrantissimo, nonnihil ad moscatum accedente; saporis acris aromatico.” *Geoff. ii. 7.* — 2. It emits upon incision a most fragrant resinous gum, of a yellow colour, which contains all its virtues: and contains fixed aromatic parts, as well as some more volatile. For it keeps many years without spoiling, or losing almost any thing of its aroma. Hence it make an agreeable confection. — 3. It is commended, and of great use, in all cold phlegmatic diseases of the stomach, affections of the nerves, flatulencies, &c. but especially in pestilential distempers, and that both as a preservative and cure.

“Pro præservatione, radículas aceto maceratas, aut naribus admovent tantum, aut sub lingua habent, aut masticant, aut acetum bibunt jejuni. Pro curatione, pulveris solius ʒj, vel ʒʒ, cum theriacæ ʒj. in vino tenui, in aqua cardui benedicti, &c. propinant & sudorem inducunt, idque repetunt singulis sex horis.” *C. Hoffman. p. 104.* It is also said by some to be a pectoral when given in honey or syrup: Hence *Germanis* Brustwarts, *i. e.* Pectoraria radix nuncupatur. Vide *J. B.* “Est nervina, stomachica, specifica in cardialgia, carminativa, uterina (nocet quibusdam hystericis . . .) diure-



“tica, fudorifera, alexipharmaca & analeptica. Externe difcutit & roborat; præcipue ad tumores frigidos valet.” *Nucl. Belg.* p. 22.

“Ex radicum recentium angelicæ lbiv. ℥xiv. per analyfim chymicam prodierunt phlegmatis urinoſi ℥x. circiter; phlegmatis acidi lbij. ℥vj; olei tum effentialis, tum craſſioris ℥j, remanente cap. mortuo ad ℥viſſ, ex quo ſalis lixivioſi mere alcali gij. gr. liv, terræ inſipidæ gvj. gr. xii, extracta fuerunt. Nullus ſal volatilis concretus apparuit; folia vero diſtillata aliquot hujus ſalis grana præbuerunt.” *Geoff.* ii. 7. This is not the common ſty'e of the analyſes he relates: here he deals much in round numbers; and omits the jaſturæ, which muſt have been in diſtillation ℥viſſ, in calcination ℥v. gij. gr. vi, if his quantities are juſt. I ſhould have expected more urinous ſpirit, more oil, and more earth. What he further obſerves on this plant neither explains nor illuſtrates any thing relative to its virtues.

### S E C T. III.

It may be given in ſubſtance to ʒj. in infuſion to ʒij. We keep aqua angelicæ (radicis an foliorum?) & radix condita. Ingrediuntur folia aq. alexiteriam; ſemen aq. epidemicam; radix aq. theriacalem & tincturam ſalutiferam. It had a principal place alſo in the Theriaca *Pb. Edin.* edit. 1722. but was thrown out in that of 1735. The effential oil, and reſinous extract are efficacious medicines, though not in uſe.

Ingrediuntur folia aq. alexeteriam ſimplicem & ſpirituofam, cum & ſine aceto *Pharm. Lond. Novæ.* And the ſtalks are there directed to be candied.

## HERBÆ APERIENTES MINORES.

### I. A N O N I S.

#### S E C T. I.

Anonis, Ononis, Areta bovis *offic.* Anonis ſpinofa, flore purpureo, *B. P.* 389. *T.* 408. *Park.* 993. *R. H.* 957. A. five Areta bovis, *Ger.* 1322. A. five Areta bovis purpurea ſpinofa, *J. B.* ii. 391. Anonis, *Dod.* 743. A. purpurea vulgaris ſpinofa, flore purpureo, ſiliquis erectis, lentiformibus, *H. Ox.* 2. 169. Ononis floribus fere ſeſſilibus, ſolitariis, lateralibus; caule ſpinofa, *H. Cliff.* 359. Reſtharrow, Cammock, or Petty-whin.

It grows in waſte grounds, by road ſides, and amongſt corn; flowering in June and July, and bearing fruit in autumn. It is *Ὀνωνίς*, *Theophr.* l. 6. *Hiſt.* c. 4. & 5, ab *eyes* aſinus & *εννημι*, juvo, q. aſini oblectamentum: *Ανωνίς* in *Dieſcorides*, l. 3. c. 21. p. 180. (which they derive ab *a* priv. & *εννημι*, quod aratriſ fit inimica); where it is called remora aratri, areta, or reſta bovis. “Niſi quis ex adverſo nomen impoſitum cenſuerit.” *B. P.* *Pliny* writes it both ways, l. 21. c. 15. & l. 27. c. 4. “Antiquiſſima hæc ſcripturæ varie-

tas, mea opinione, non aliunde proſecto quam a dialecto. Cum enim

"agricolæ dupliciter efferrent, mansit utrumque, nec opus est etymologia." *Hoffman*. p. 105. If this is the anonis antiquorum, it has no claim to the virtues they give it. For according to *Dioscorides*, and *Pliny*, margines ulcerum erodit; and *Galen*, *Simpl.* l. 8. p. 57. D, makes it hot in 3°. Neither can its odour be called jucundus, as it is in *Pliny*. "Revera enim hircum olet." Vide *Hoffman*. p. 105. See *J. B.* 2. 391.

It is a long, tough, twiggy, white root, of a sweetish leguminous taste, and rank fetid smell. "Folia sapore leguminoso, tactu glutinoso, odorataque," *J. B.* imo foetida, *R. H.* "The leaves are of a leguminous taste, smell ill, and are a little glutinous." *T. Hist.* p. 53. "Radix saporis ingrati." *Geoff.* iii. 98. "Radix saporis leguminosi." *Nucl. Belg.* 2. 15. "The root has a disagreeable smell, and nauseous sweetish taste." *New Disp.* p. 171. *N. B.* The root is not fetid, but smells like other leguminous roots, is sweet, and tastes somewhat like liquorice. Tea made of it is but little tinged, and tastes and smells like barley-water with a very little liquorice in it. It does not grow black with a solution of green vitriol; nor does it redden the tinct. heliotropii.

## S E C T. II.

It is diluent, attenuant, diuretic, nephritic, and vulnerary: commended in the jaundice, gravel, hæmorrhoides cæcæ, sarcocoele, &c.

"Radix, ac potissimum hujus cortex, calf. & siccatur in principio 3. abstergit, attenuat, discutit. *Ufus præcip.* in diuresi, lithiasi, ictero, obstructione epatis, in carnosio ramice absumendo, hæmorrhoidibus cæcis, mariscisve discutendis (infusum aliquamdiu bibitum). Extrinsecus in putredine oris, ac dolore dentium (gargaris). *N.* antequam spinas producit conditur cum sale pro cibario. *Præp.* Aqua stillatitia, ex integra planta cum radicibus novellis eruta." *Schrod.* 639.

According to Mr. *T.* "The leaves (or herb, he says only the Restharrow) redden a little the blue paper, and seem to contain a salt, like tartar vitriolated, involved (embarrassé) in phlegm, thickened by much earth and sulphur: so that all authors agree that this plant is very aperient and diuretic." *Hist.* 53. "Analyti chymica ex anonide multum olei, acidi salis, & terræ, salis fixi mediocris quantitas, spiritus urinosi exigua eliciuntur. Præterea anonidis succus chartam cæruleam subrubro colore tingit; folia leguminoso sapore sunt, foetida & glutinosa; unde Cl. T. concludit hanc plantam constare sale tartaro vitriolato fere simili, phlegmate, multa terra, multoque sulphure involuto. Ab his autem principiis, quæ unanimi consensu ab omnibus medicis ipsi tribuitur vis aperiendi, & urinas abunde promovendi, pendet." *Geoff.* iii. 98. Thus *T.*'s conjecture is confirmed by an imaginary analysis.

*Matthioli* commends it much in the stone; and *Simon Pauli* says, "Hujus radici, aut potius radicis cortici, vix suppar remedium reperitur, quod componi cum eo queat, tam in vesicæ quam renum calculo." *Matthioli* also says he knew a sarcocoele cured by it. "Novi ego quendam qui hujusce radicis pulvere duntaxat pluribus mensibus sumpto carnosam ramicem absumpsit,



“ & sanatus est; licet a medicis, nullo alio medicamento, quam sola sectione  
 “ utioneque hunc curare posse antea statutum esset.” 560. But an hydrocele  
 may sometimes be mistaken for a sarcocoele, which requires somewhat else than  
 diuretics. “ Verum enimvero Alexander Pfisterus Scaphusianus Medicus in  
 “ *Dissert. de Hydrofarcocoele* §. 50. refert se sæpius & in diversis subjectis eam  
 “ præscripsisse, experientia autem dedicisse, 1. Illam non in omnibus diureti-  
 “ cam existere; 2. In pluribus anorexiam & cardialgiain inducere. 3. Sar-  
 “ cocelen vero nequaquam ab ejus usu continuato imminui.” *Geoff.* iii. 99.  
 where you have ononidis essentia Etmulleri.

## 2. C A P P A R I S.

### S E C T. I.

Caparis, *offic.* Capparis spinosa, fructu minore, folio rotundo, *B. P.* 480.  
*T.* 261. *C. retuso folio, Lob.* 359. *It.* 635. *C. spinosa folio rotundo, Park.*  
 1023. *C. spinosa, J. B.* 2. 63. *C. rotundiore folio, Ger.* 895. *C. spinosa,*  
*folio rotundo, R. H.* 1620. *Capparis aculeata, H. Cliff.* 233. Capers, or  
 Caper-bush.—The flowers, buds and roots are used.

It grows in Italy, Spain, South-France, &c. and is carefully cultivated in  
 Provence, about Toulon, &c. whence Paris and most part of Europe are fur-  
 nished with pickled capers. “ Chuse them small, fresh, green and tailed.”  
*Savary Diet.* i. 541. It flowers in May or June; and in September the fruit  
 ripens.

The capers are the flower-buds not opened, consisting of a four-leaved ca-  
 lyx, tetrapetalous flower, numerous stamina, and the pistillum. When come  
 to a proper bigness, they are gathered, spread out in the shade, for three or  
 four hours, then macerated in vinegar for eight days; after which they are  
 taken out, gently pressed, and again infused in fresh vinegar, for another  
 week; which is also done the third time. They are put up into casks with  
 fugar, to which some add a little salt. Thus the capers will keep good for  
 three years. Vide *R. H.*

The root is pretty large, woody, and covered with a thick white bark,  
 which is the medicinal part, and comes sometimes in quills, sometimes in smaller  
 pieces, and some of it adhering to the wood; of a bitterish subacid taste;  
 with the flavour of capers, without any remarkable smell.

This shrub is pretty well described by *Dioscorides* lib. 2. c. 204. p. 162. He  
 makes it all very acrid, but more or less so, according to the place where it  
 grows. “ Capparis Africa, says he, vehementer inflat; Apula vomitum facit;  
 “ quæ vero e Rubro Mari & Arabia defertur acerrima.”

It is Cappar, Capparis; or Capparis, Cappareos, being a Greek word. We  
 find it in Aristophanes and Theophrastus, as well as in Dioscorides, Galen, &c.  
 so that it cannot be derived from Campus, as Phavorinus supposes; nor from  
 Caput, as Lemery would have it. See for the etymology *Bod. in Theoph.*  
 p. 638. — N. B. *Eccles.* xii. 5. is thus translated from the original by the  
*Seventy*, καὶ διασχεδασθὲν ἡ καππαρίς: this the *Vulg. Latin* renders by *Et dissipa-*  
*tur capparis*; *Castalio* by *Et peribit appetitus*; and desire shall fail, *Anglicè.*

S E C T.

## S E C T. II.

It is a diluent and gently stimulating deobstruent, and diuretic; called subastringent; and commended in obstructions of the viscera, especially of the spleen, in arthritic pains, &c: or in other words it is subacid, a bitterish diuretic, splenic, and hepatic.

“Cortex (radicis imprimis) calf. & siccatur. est spleneticus, acris, amarus, austeriusculus, ideoque incidens, aperiens, extergens, subastringens. Prodest in affectibus arthriticis, hypochondriacis & similibus. *Præp.* 1. Coditi flores, aceto & sale. N. Nocere creduntur stomacho imbecilliore, epati e contra & lieni conferunt, obstructions eorum referando. 2. Oleum compos. 3. Trochisci. 4. Extractum.” *Schrod.* p. 553.

1. This bark, as we have it, tastes first soft and a little sweetish, with the caper flavours; then pretty bitter. I can discover nothing of roughness or astringency in it by the taste: and it does not turn a solution of green vitriol black.

“Capparis radicis cortex, vincentem habet qualitatem amaram, proximam acrem, deinde acerbam. Ex quo liquet, quod diversis pugnantis constet facultatibus, quibus abstergere purgare, incidere potest amaritudine; excalfacere, incidere, digerere acrimonia; porro contrahere, densare, constringere, acerbitate, &c.” *Galen. Simpl.* l. 7. p. 49. G. And since him Simon Pauli, Hoffman, Herman, and every author that I have seen, make it astringent, & *gustu & effectu*: though neither Dioscorides nor Pliny mention any such quality, and Hippocrates even orders it as a detergent in peripneumonia. Postquam autem purum esse sputum coeperit, ari concham majorem & sesamum. . . . Quod si magis educere voles radicis capparis corticem his admisceto.” *De Morb.* l. 3. p. 493. lin. 23. — 2. All the ancients however esteemed it an efficacious remedy in several diseases. “Fructus sij. pondere ex vino potus ad dies 40 lienem absumit: quippe qui urinam trahit, cruentumque alvi excrementum educat. Epotus itidem ischiadi & paralyti succurrit; itemque ruptis & convulsis: menses ciet, ac pituitam capite detrahit. Quin & dentium dolorem sedat, ex aceto decoctus, colluto inde ore. Radicis autem cortex aridus tum ad antedicta valet, tum etiam quodvis vetus, fordidum & callosum ulcus expurgat. . . . Denique radix foliaque trita duritias strumasque discutunt; aurium vero vermiculos infusus succus enecat.” *Dioscorid.* l. 2. c. 204. p. 162. *Pliny*, l. 20. c. 15. p. 528, gives it much the same virtues. “Ferunt eos qui quotidie capparim Italianam edunt paralyti non periclitari, nec lienis doloribus. Spleneticis prodest in vino potu radicis cortex zij. dempto balnearum usu. Feruntque 35 diebus per urinam & alvum totum lienem emitti, &c.” Perhaps when recent it is more acid, and also cathartic. Galen adds to what is formerly cited from him: “Itaque lienes induratos, si quid aliud hoc medicamentum juvare valet, tum foris . . . tum intrò . . . quippe cum aperte crassos lentosque humores evacuet, nec eos tantum per urinas, sed & per ventrem; sæpe enim sanguinolentos defert, unde & lienes adjuti sunt, & coxarum dolores.” *Galen.* l. c. What follows is but a commentary on Dioscorides. “Radicis cortices saporis amari & farinosi.” *Nucl. Belg.* 59. “Amari sunt, acres acerbis. . .



“ Totus fructus saporis est subamari, adstringentis, & salem essentialem continet nitroso-aluminosum cum oleo copioso conjunctum.” *Geoff.* iii. 251—2. According to whom l. c. “ Analyti chimica, ex corticis radice capparis lbv prodierunt humorum lbj, ℥xij, ʒv, gr. xxiv: olei ℥ij, ʒij. Carbo pendebat lbj, ℥ix. ʒvj; unde cinerum ℥vij, ʒij, gr. xxxvj, et inde salis fixi salis ℥ij, ʒiv, gr. xij. (so that there were terræ ℥iv, ʒvij, gr. xxiv). Jactura in destillatione fuit lbj, ʒvj, ʒij, gr. xlvij; in calcinatione lbj, ℥ij, ʒij, gr. xxxvj.” The whole sum here is right: but it is somewhat extraordinary that there should be a jactura in destillatione of more than  $\frac{1}{4}$  of the whole.—3. The pickled capers are said to hurt weak stomachs (Mr. Ray thinks otherwise); but to be useful in obstructions of the liver and spleen. In a word, they owe their virtues more to the vinegar, than to the flowers: where this is hurtful so are they, and *è contra*.

“ Cortex radicum, nitroso suo sale (vid. nitrum supra) humores viscidos dissolvit, urinas provocat: styptica sua terra viscerum tonum laxiorem restituit et firmat: unde omnibus fere morbis chronicis conducit. . . . Menses provocat. . . . Pulvis ad ʒj. intus sumitur, infusum vero vel decoctum ℥j. in lbj. aquæ vel vini.” *Geoff.* iii. p. 252.

### 3. E R Y N G I U M.

#### S E C T. I.

Eryngium, Iringus, *offic.* Eryngium, Eringus, After Atticus, Centum capita, Inguinalis, *Schroder.* 586. Eryngium maritimum, *B. P.* 386. *H. Ox.* 3. 165. *T.* 237. *E. maritimum*, *Dod.* 730. *Clus. Hist.* 2. 159. *Lob. Adv.* 375. *Ger.* 1162. *Park.* 985. *J. B.* 3. 86. *R. H.* 384. *Syn.* 222. Eryngium foliis radicalibus subrotundis, plicatis spinosis, floribus pedunculatis, *H. Cliff.* 87. Eryngo, or Sea Holly.

The root is long, pretty large, brown without, white within, of a soft sweetish and somewhat aromatic taste and little smell.—It grows plentifully by the sea side here, as well as in Spain, Italy, &c. flowering in June and July. The seed is ripe in autumn; when the root, the only part used, is also at its best. The Eryngium vulgare, *B. P.* is used in Germany and France, according to Schroder and Lemery. “ *E. marini radix longissima & quæ de nos duodenosve pedes excedat, crassior enim quam montani, odoratior, cibo medicamento gravior, efficacior: non enim nisi hac deficiente, utuntur docti illa, non perinde freti viribus illius.*” *Lob. Adv.* l. c.

It is probably the *νεργυγιον Dioscoridis*, l. 3. c. 24. p. 181. and the Eryngion five Eryngion *Plin.* l. 22. c. 7. p. 569. The etymon seems trifling. Vide *Bod.* in *Theophrasti.* p. 610. and *Lemery's Dictionary*, p. 211.

#### S E C T. II.

It is a subaromatic antacid, deobstruent, and diuretic; also called hepatic, nephritic, alexipharmic; and commended in obstructions, jaundice, colic, &c. It may as properly be numbered among the alimenta, as medicamenta.

“Radix colligenda sole existente in cancro, epatica nephritica & alexipharmica est, temperate calida, mediocriter sicca; aperit, discutit. *Ufus præcip.* “in obstructis mensibus, urina, hepate, vesica biliare, liene, &c. & hinc in “ictero, ut & (teste Galeno) in colica. *Præp. Condita radix.*” *Schroder.* p. 587. “Aliqui e nostris sub solstitio collegi eam jussere.” *Plin.* l. 22. c. 8.

1. The senses discover no acrimony, no astringency or bitterness, and but little of an aromatic quality in this root. An infusion of it in boiling water, after it stood macerating in the water a whole day was of a sweetish subaromatic taste not unlike that of boiled parsneps, of a wheyish colour; made no change on a solution of vitriol; but turned a solution of heliotropii to a claret-colour, which a few drops olei tartari p. d. did not alter, though it made it smell a little urinous. After some weeks the infusion became very slimy and ropy; and the roots, except the cuticle, turned to a mucilage, and stank abominably. Hence it appears to be antacid and putrescent. *Tourn. Hist.* p. 78, says “*Eryngii vulgaris B. P.* folia redder the blue paper, but the root “does so more.” *Eryngium* is among the antacida, in *Boerb. Lib. de M. M.* It is true in Holland, at least in *Pb. Leidenst.* it is the maritimum that they use, but *Boerb.* in *H.* gives the same virtues to both. — 2. Dioscorides commends the eryngium ad menses obstructos, tormina, inflationes, hepaticos, venena, venenatos morsus, episthotonicos, & comitiales. “Bibitur vero ut plurimum “5j. pondere cum pastinacæ semine.” *Dioscorid.* l. 3. c. 24. p. 181. None of the ancients make it provocative, though some moderns do. Hence *Rapinus* in *Boerb. Hist.*

“Non male tum Graii florens *Eryngus* in hortis  
 “Quæritur: hunc gremio portet si nupta virentem  
 “Nunquam inconcessos conjux meditabitur ignes.”

“Veneris quoque blandum est incentivum, &c.” *Geoff.* iii. p. 442. *Matthiolus* thinks this quality has been attributed to it, because taken for the *Secacul Arabum*. “*Rustici* vescuntur ad satietatem, & sic puto esse stomachicum.” *Albin. M. S.* What can then 5j. or 3ij. do? It is commended also in the gonorrhœa, in chronical diseases, and what not. And is indeed as safe as parsnips and skirrets.

There is an analysis of *eryngii vulgaris* in *Geoff.* iii. 441. according to which it affords no volatile salt; though *T. H.* l. c. says, by a chymical analysis the plant yields volatile concrete salt *en mediocre quantité*. I shall only observe that the jactura in Mr. Geoffroy in the distillation is not a 12th part of the whole; and that he has discovered that the root cannot be powdered unless it be dried. “*Eryngii* vis potior in radice, vel etiam in radicis cortice (*errat hic*) qui non “facile in pulverem teri potest nisi exsiccatus, sed tum fere omni virtute “orbatur, observante P. Herman: hinc in decocto recens ad 3j. pro singulis decocti libris, vel conditus usurpari debet.” *M. M.* iii. p. 442. Is not the radix *condita* as weak as the *siccata*?



## 4. GRAMEN.

## S E C T. I.

Gramen, Gramen caninum, *offic.* Gramen caninum arvense, sive Gramen Dioscoridis, *B. P.* 1. G. caninum arvense, sive primum, sive Gramen Dioscoridis & officinarum, *B. Theat.* 7. G. Loliaceum, radice repente, sive Gramen officinarum, *T.* 516. G. repens officinarum forte triticeæ spicæ aliquatenus simile, *J. B.* 2. 457. *R. H.* 1255. Gramen, *Dod.* 558. G. caninum, *Tab. Ic.* 201. *Ger.* 23. G. caninum vulgatus, *Park.* 1174. G. caninum repens vulgatus, *Park.* *H. Ox.* 3. 178. t. 1. f. 8. G. spica triticea, repens, vulgare, caninum dictum, *R. Syn.* 390. Triticum radice repente, foliis viridibus, *F. Lap.* 22. *H. Cliff.* 87. Common Dogs-grass, Couch-grass, Quitch-grass, or Quick-grass. — This is indeed common enough in gardens and corn-fields: yet badly described, and worse figured, by most authors. Morison gave the first accurate figure of it. The root is long, slender, jointed, and creeping; of a straw colour, sweetish taste, and little smell.

Gramen, a gradiendo, from its creeping roots. “*Ἀγρωστis*, quasi agrestis, “*παρα των αγρων*, quod in agris ubique sponte, quovis cœlo & solo, etiam “non satum nec cultum, luxuriet.” *R. H.* It is probably the *ἀγρωστis* Dioscoridis, l. 4. c. 9. p. “Quia omnium herbarum frequentissima.” *B. P.*

## S E C T. II.

Grass roots are diluent, deobstruent, and diuretic; called nephritic, hepatic, vulnerary, anthelmintic; and commended in obstructions of the liver, spleen, and urinary passages, though even from gravel.

“*Officin. nat.* Potissimum radices (collectæ Maio vel Septembri) raro caulis “cum foliis, rarius semen. *Vires.* Radix cujuscunque graminis, refrigerat “& siccat, aperit, subastringit; substantiæ est tenuis ac penetrativæ. Herba “seu folia intra siccitatem & humiditatem moderata sunt, frigida gr. i. *Ufus* “*præcip.* in obstructionibus epatis, lienis, ureterum, in expuitione sanguinis “(ubi succus ex integra planta valet) in lumbricis necandis. Extrinsecus in “dolore capitis leniendo, (seligunt gramen septem nodorum *sec. Plinium*) in “oculorum inflammationibus & defluxionibus (has sedare dicitur gramen “3 nodorum, decresciente luna evulsum, ac collo circum ligatum) in auribus “purulentis, in odontalgia, in tumoribus podagricis discutiendis. *Præp.* “Aqua stillat. ex radice mense Maio collecta. N. diarrhœam sedat infantium, si abdomen ea lavetur.” *Schroder.* p. 598. *Plin.* l. 24. c. 19. p.

1. This both in taste and smell agrees with other grasses, of which hay is made, and whereon cattle most commonly feed. Dogs eat the leaves, and commonly vomit after eating them; not from any acrimony in the juice, but the mechanical irritation they cause in the fauces.—2. Tea made of these roots, (as those of eringo) is little tinged, of an herbaceous taste. Solutio vitrioli viridis makes it turbid, scarcely green, and precipitates but a little. It only

dilutes

dilutes syrup. violarum: tinct. heliotropii is but little reddened by it: oleum tartari makes it smell somewhat urinous: and of itself in a week or two it grows putrid. "Analyſi chymica ex radicum graminis canini exſiccatarum lbv. prodierunt humoris limpidi ferè inſipidi & inodori, obſcurè acidi 3x, gr. xxxvj; humoris primò ſubacidi, deinde manifeſtè acidi & ſubauſteri lbj, 3ij, gr. xxx; humoris ruſi, odoris & ſaporis empyreumatici, ſubſalſi, intenſè acidi & intenſè auſteri lbj, 3vj, gr. xij; olei 3ij, 3ij, gr. xlvij. Carbo pendebat 3xx, 3vj; unde cinerum 3ij, 3ij, & inde ſalis fixi merè alcali 3iv, gr. l. Jaçtura in diſtillatione fuit 3xj, 3vij, gr. xvij; in calcinatione 3xviiiß." *Geoff.* iii. 528. who thus concludes, "Radices graminis ſaporem obtinent ſubdulcem, aliquantiſper ſaccharinum, cum aliqua adſtrictione. Salem continere videntur eſſentialem, ſali coralliorum analogum cum multo ſulphure permiſtum." May it not be ſaid rather to be ſomewhat ſaccharine and ammoniacal? *N. B.* This conjecture from the taſte alone I find of late to be better founded than Mr. G's from his analyſis. "Recentibus graminis radicibus eſſentiale aliquod ſaponaceum ideoque leniter reſolvens inhærere, ſal inde confirmat, quod Cl. Marggraſſ ex illis, æque ac aliis radicibus ſimilibus, ſaccharum præparaverit." Thus *Jo. Lud. Leberecht Loefke De ſelectiſſimis remediis pharmaceuticis, &c. tractatus: Berlin edit. 1755. 8vo. Germanice. Vide Comment. Lipſ. vol. v. p. 122.* — 3. The diſtilled water kills worms. The decoction, and the powder of the roots are ſaid alſo to have the ſame effect. "Aqua graminis, non minus quam ſtillatitiæ aquæ ſorum aurantiorum, myrti, roſarum, apta eſt occidendis lumbricis, qui in ea ingentem viſcidæ materiæ copiam moriendo emittunt, varioſque patiuntur motus convulſivos. Poſtquam vero extincti ſunt, quaſi rigidi videntur. Aquæ pulegii & thymi eundem fere effectum, & eadem fere celeritate præſtant." *Redi, de Inſect.* p. 132. And worms died in orange, myrtle and roſe-water, in a few minutes; none living therein above 1½ hour. "Earundem decoctum a nonnullis quoque ad enecandos & abigendos infantium lumbricos uſurpatur. . . Earum quoque pulvis, verno tempore collectarum & exſiccatarum, ad 3j. exhibitus a nonnullis ad lumbricos, nec non etiam in rachitide præſcribitur." *Geoff.* iii. 529. — 4. It is much commended in colics, dyſuries, the gravel, ſtone, obſtructions of the viſcera, and diſeaſes thence ariſing. What ſervice graſs does to cattle in many diſeaſes is well known: but ſurely it is not owing to adſtriction; nor effected by ſmall doſes. "Graminis radix trita & impoſita vulnera glutinat. Ipſius autem decoctum epotum efficax eſt adverſus tormina, dyſuriam, ac veſicæ ulcera; & calculos frangit." *Dioſcor.* l. 4. c. 30. p. 255. In *C. Baub. Theat.* p. 10. near a folio page is filled with its virtues: and yet it is excluded the *M. M. Pharm. Londinenſis*. Though perhaps there is not a more efficacious remedy, as well as a more ſafe and eaſy one, in obſtructions of the chylopoëtic viſcera, the hypochondriac paſſion, atrophy, and other chronic diſeaſes thence ariſing, than a decoction rad. graminis, anonidis, cichorei, apii dulcis, urticæ; herbæ fumarix, &c. uſed in the ſpring for common drink, with proper exerciſe; although all theſe are excluded the *Lond. M. M.* Vide *Van Swiet. Comment.* vol. iii. p. 136.



## 5. R U B I A.

## S E C T. I.

Rubia, *Rubia tinctorum*, *offic.* *Rubia tinctorum sativa*, *B. P.* 333. *H. Ox.* 3. 326. *T.* 114. *Rubia*, *Dod.* 352. *Rubia tinctorum*, *Ger.* 1118. *R. H.* 480. *R. major sativa*, *sive hortensis*, *Park.* 274. *R. major*, *Clus. H.* 2. 177. *R. sativa*, *J. B.* 3. 714. *Rubia foliis senis*, *H. Cliff.* 35. *Madder*, or *Garden Madder*.

The *Rubia sylvestris Monspeliensis major*, *J. B.* 3. 715. of which the *sativa* is only a *varietas* according to *Linnæus*, grows wild in several places of England. But the garden madder is cultivated with care in Holland, Zealand, Flanders, &c. whence vast quantities of it are annually exported. "It was formerly cultivated in diverse parts of England for the dyers use, but of late years it has been wholly neglected; so that at present I believe there is scarce any of it cultivated, except in small quantities for medicinal use. . . I have been informed that we pay upwards of 3000*l.* sterl. annually for this commodity." *Mill. Dict.* The madder of Flanders and Zealand, *Savary* says, draws annually a great deal of money from France.

The roots are numerous, long and branched strings, seldom thicker than a goose quill, issuing from a knotty head, containing under a deep red thick bark, with a greyish cuticle, a more woody yellowish pith: they are of a sweetish taste and no smell.

It flowers, as we are told, in May and June: and the seeds are ripe in September. The stalks do not begin to decay here till late in autumn, or they are killed by the frost; when, or a little before, in September or October, the roots should be taken up. Though it grows with us luxuriantly I have not seen it flower. "The merchants distinguish three sorts of madder, viz. 1. *Garance en branches*, that is the roots only dried, without any other preparation. 2. *Garance grappe ou robbe*, i. e. madder freed of its cuticle, and pith, and coarsely powdered. And 3. *Garance non robbe*, which is the madder in branches powdered: the second is the best." *Vide Savary Dict.* ii. 214. from *Pomet*. The bark being the most useful part, and the cuticle and pith the worst, when the whole is ground together, it must be of less value, than when the bark is freed from the other parts. At Amsterdam they sell four sorts of it. *Ibid.* p. 112.

This appears evidently to be the *ῥυβιδάκων* or *ῥευβιδάκων* and *Rubia* of the ancients: For although *Theophrastus* gives it *folia hederæ*, *rotundiora tamen*; and *Pliny* *caules spinulos*, yet *Dioscorides* l. 3. c. 160. p. 238. describes it sufficiently. It is called *Rubia*, a *radicis colore rubro*, and for the same reason *ῥυβιδάκων* & *ῥευβιδάκων*, *ῥυβιδος*, signifying *ruber*, & *ῥευβιδος* *rubedo*: and both these ways it is written in *Hippocrates*. Some think it the *Scandix Virgilii*, *Eclog.* 4. v. 45. *Pliny* treating of the *Scandix* says, "Quamquam animadverto *Virgilium* existimasse herbam id esse, illo versu, *Sponte sua Scandix pascentes vestiet agnos*." *Plin.* l. 35. c. 6. p. 833. *G. Fallopius* censures *Pliny*. *Vide Fallop. de Fossil.* c. 28. p. 332. See also *B. P.* and *Bod.* in *Theophrast.* p. 1113.

## S E C T.

S E C T. II.

It is diuretic, or I don't know what; called subastringent and vulnerary; and commended in hard labour, female obstructions, jaundice, dysentery, dropsy, &c. It is in Decoctum ad icteros, *Ph. Edin.* where, if it be not hurtful, it is of no use, unless it be to colour the faeces.

"Rubia adfertur ad nos ex Silesia, ubi copiosè feri colique solet. *Officin.*  
"Radix sola, collecto Maio ac Junio. *Vires.* Calf. 2. sicc. 3. (*aliis refrig.*)  
"aperit, discutit, dissolvit, subastringit, vulneraria est. *Usus præcip.* in obstruc-  
"tionibus epatis, lienis, & imprimis uteri: proin in ictero, hydrope, urina  
"obstructa, sanguine coagulato. Extrinsecus in obstructione mensium (in  
"pessis) &c." *Schroder.* p. 666.

1. The taste is sweet, and as it were somewhat drying. I discover no bitterness nor astringency in it. Nor does it blacken a chalybeate water or solution of green vitriol. Rubiæ thea mixed with sal. vitrioli becomes of a deeper and somewhat duller-red colour, transparent still and precipitating very little: with oleum tartari its colour becomes of a brighter and deeper colour, as it does also with aq. calcis. A solution of alum only dilutes it. "Est rubiæ  
"tinctorum radix acerba & gustu amara." *Galen. Simpl.* l. 7. p. 47. F. And almost all the moderns make it astringent. "Saporem est mixtum, dulci acerbum,  
" & subamarum." *J. B. R. H.* "Saporis ex dulci amaricantis, & adstringentis,  
"odoris nullius." *Dale,* 132. "Of an astringent taste." *Lem. Diet.* 467.  
"Gustatæ radices acerbum saporem referunt, cum exigua tamen quadam dul-  
"cedine primo occurrente, quam acerba & astringens mox excipit qualitas;  
"Avicenna etiam rubiæ radicem pontici esse saporis scriptum reliquit." *Dod.*  
353. — 2. It is of great use in dying. "Tingit pannos floride colore rubro,  
"eoque constanti, quod fieri non posset, nisi tenues & calidas haberet partes,  
"quibus in ima penetrat, quas subsequitur frigidæ firmant." *C. H. ffman.* p. 438.  
It tinges the urine of such as use it of a red colour, as if bloody. — 3. It is  
commended in many diseases, as in the dysentery by *Hippocrates* in *Lib. de Viætu*  
*Acut.* p. 407. l. 12. If he was the author of this book, it is there called *ῥυθρο-*  
*δαρον*: but it is *ῥευθεοδάρων*, lib. i. *De Morb. Mulier.* p. 634. l. 15. edit. *Fæs.*  
which is owned by all as genuine; and an infusion of it with cedri ramenta  
is ordered ad foetum mortuum expellendum. "Radix est ciendæ urinæ vi præ-  
"dita, qua de causa ictericis auxiliatur epota cum aqua mulsa; itemque  
"ischiatricis atque paralyticis. Crassam porro copiosamque urinam pellit, ac  
"interdum sanguinem. . . Semen vero ex aceto multo potum, lienem ab-  
"mit. At subdita radix, partus, menses, secundinasque trahit." *Disco-rid.* l. c.  
*Galen* says much the same things, as to its virtues, *Simp.* lib. 6. p. 47. F.  
"An radix abstergat & aperiat, an potius adstringat controversatur. Qui ad-  
"strictionem ei attribuant, adversus fluxum mensium, hæmorrhoidas, & dy-  
"senterias propinant: qui aperiendi facultatem, in ictero, hydrope, urina  
"obstructa, et sanguine coagulato exhibent. Et fortasse utriusque qualitat-  
"is particeps est." *R. H.* But — 4. Although from what is said, madder ap-  
pears to be a diluent and deobstruent diuretic; yet its effects on animals,  
which lately came to my knowledge, give reason to suspect something malign-  
ant in it, or that it may not be so safe as I formerly imagined. Vide *Phil.*



*Transf.* No. 442. (for 1736.) p. 287. No. 443. p. 299. or *Abridg.* vol. 9. p. 102. also *Mem. Acad. R.* 1739. p. 1—18. “Erythrodanum, vulgò Rubia tinctorum dictum, ossa pecudum rubenti et sanguineo colore imbuunt, si dies aliquot illud depastæ sint oves, etiam intacta radice, quæ rutila existit.” *Mizaldus*: (Memorabilium jucundorum et utilium, Centuriæ novem; *Lutetiæ*. 1566, in 8vo.) *N. B.* 1. The bones are dyed with it (through their substance, not superficially only) of a deep-red colour; which neither water nor spirits could discharge: but neither the liquids, flesh, or cartilages are in the least tinged with it. 2. It had this effect on hogs and cocks, according to Mr. *Belchier* (*Phil. Transf.*); on pullets, turkeys, pigeons, (*Mem. Acad.*) none of which would drink the infusion of the root, nor willingly eat of it, though mixed with flower. And 3. The above-mentioned fowls, when fed with it, languished and visibly wasted away; so that some died within sixteen, others ten, and some in three days, *pro viribus vitæ, & veneni quantitate*. See the *Phil. Transf. Abridg.* l. c. p. 102. ad 110. Logwood, anchusa, and curcuma, had not the like effect on the bones. *Du Hamel*, l. c. But in the *Mem. R. Acad.* 1746, we have experiments shewing that other plants as well as madder reddened the bones; even all the plants of that class (section rather, as gallium luteum, gall. album, aparine) by Mr. *Guettard*. “One pullet took gall. albi pulv. ʒij. in twelve days: another gall. lutei ʒxvj. in nine days; both of which became lean and hot, and would not eat of the gall. willingly. “A third pullet had aparines ʒij. in a few days, whose bones were as red as any of the former; it eat with appetite of the aparine, and fattened on it.”

## S E C T. III.

The caper bark may be given in substance to ʒij, if not too bulky; but is seldom thus used: eringo, anonis & gramen ad libitum; the rubia to ʒj. They are more used in infusions and decoctions to ounces. We keep no preparations of any of them, except the radix eryngii condita; and pickled capers.

None of them are honoured with a place in the *New London M. M.* except the rubia, which is in none of the compositions; and eryngium, whose roots candied are also retained, and the preparations of them better directed, than in the former Pharmacopœia, which our Dispensatory follows too much here. For if both rind and pith, or cortex and medulla, be thrown away, there will little remain for candying: and at best, thus decocted, candied parsnips will be every way as good. I have known a good strong wine made of eryngo roots, and raisins; though it owed little to the roots.

## HERBÆ APERIENTES MAJORES.

## I. APIUM, &amp; 2. PETROSELINUM.

## S E C T. I.

1. Apium, Apium palustre, Paludapium, Eleoselinum, *offic.* Apium palustre, & Apium officinarum, *B. P.* 154. *T.* 305. A. palustre seu officinarum, *B. P. R. H.* 447. *H. Ox.* 3. 293. A. palustre & officinarum, *R. Syn.* 214. A. vulgare ingratus, *J. B.* 3. 2. 100. A. vulgare, five palustre, *Park.* 926. Paludapium, *Lob.* 405. *Aav.* 315. Eleoselinum, *Dod.* 695. E. five Paludapium, *Ger.* 1014. Apium foliis caulinis cuneiformibus, *H. Cliff.* 107. Smallage.

The root, herb, and seed are used. The roots are large, fibrous and white, of a sweetish subacid taste, and proper smell. The seed is small, striated on one side, and plain on the other, of a greenish or brownish colour, more acrid and aromatic than the root. The flavour of the leaves is stronger than either.

Smallage grows wild by ditches, rivers, in fenny places, in England, France, &c. and of it by culture in the warmer climates is produced the Apium dulce, *Celeri Italorum*, *T.* Selinum five Apium dulce, *Park.* which again in some years, in our gardens, degenerates into common smallage, according to *R. H.*

2. Apium hortense, Petroselinum, & Persilium, *offic.* Apium hortense seu Petroselinum vulgò, *B. P.* 153. *T.* 305. *H. Ox.* 3. 292. A. sativum vulgare, five Petroselinum, *Columb. Ec.* 1. 113. A. hortense, *Dod.* 693. *Ger.* 1013. *R. H.* 448. A. hortense multis; quod vulgo Petroselinum palato gratum, planum & crispum, *J. B.* 2. 3. 97. Petroselinum vulgare, *Park.* 922. Apium foliis caulinis linearibus, *H. Cliff.* 108. Garden, or Common Parsley.

The root, herb and seed are used, and are too common to need a description: they are more palatable than the former, and so more used in the kitchen. But only the seed, (which is somewhat larger, greener, and more agreeably aromatic than smallage seed) is used medicinally. — It is a native of Sardinia, as Columna observes.

3. Apium Macedonicum, Petroselinum Macedonicum, *offic.* Apium Macedonicum, *B. P.* 154. *T.* 305. *H. Ox.* 3. 293. *R. H.* 493. A. five Petroselinum Macedonicum multis, *J. B.* 3. 2. 102. Petroselinum Macedonicum, *Dod.* 697. P. Macedonicum verum, *Ger.* 1016. P. Macedonicum quibusdam, *Park.* 924. Damus secundus Dioscoridis, *Columb.* 1. 103. Bubon foliolis rhomboideo-ovatis, crenatis; umbellis numerosissimus, *H. Cliff.* 95. Macedonian Parsley.

Where this grows naturally is not certain. Columna calls it a Planta Cretica, aut Veneta; and Parkinson says, "It is thought to have come originally from Candy to Venice, where they have sown it, and taking it for the Macedonian parsley, have used it in the mithridatium and theriaca." It sold very dear in his day. It seeded once with him; but the seed did not grow.



Though some, which I had kept four or five years, anno 1748 ripened the seed; which the succeeding spring produced plenty of plants.

The seed, which is the only part of it used, is small, oblong, brown, and somewhat hoary or hairy, of an acrid aromatic taste, with the flavour of cummin, and fragrant smell.

“ Semen est parvum, hirsutie alba obtusum, oblongum, saxifragæ hircinæ simile, odoratum, aromatico sapore, acri, fervido, & cuminum fere resistente.” *Column.* i. 107. Semina ovata, inde plana, hinc convexa, striata villosa.” *Lin. Sp. Pl.* 114.

N. B. “ Macedonicum Petroselinum etsi antehac haud cognitum fuit in Italia, factum est tamen, quorundam diligentia, ut petito e Macedonia semine, jam quibusdam nostris habeatur in hortis. Hujus copiam mihi fecit J. A. Cortusus, Patricius Patavinus.” *Matth.* p. 563. Hence, “ Habitat in Macedonia.” *Lin. Sp. Pl.* p. 353.

Our smallage and parsley are generally believed to be the ἐλεοσελινον, or ἐλειοσελινον, & σελινον κηπαιον, of the ancients; as the Macedonian parsley is taken for the πετροσελινον of Dioscorides, which he says, “ Provenit in Macedonia, præruptis in locis, semine ammeos, at odoratiore, acri, & aroma olente.” He describes none of them. Some characters of them are to be found in Theophrastus and Pliny. Vide *J. B.* 3. 2. 95. & *Bod.* in *Theoph.* p. 804. Perhaps the common use of the first two might preserve the knowledge of them. — It should be pronounced σελινον, not σελινον. For in *Hom. Il.* β. v. 777. we read,

“ . . . . . ἵποι δὲ παρ' ἄρμασιν δισιν ἕκαστος.  
“ Ἄωτον ἐρεπτομενοι, ἐλεοθρεπτον τε σελινον,  
“ Ἔστασαν. . . . . ”

Yet “ Macer corripit penultimam. Hanc herbam σελινον solet Attica dicere lingua.” *J. B.*

“ Apium translatum diligenti cultura mitius, minusque ingratum evadit, unde apud nos folia ejus teneriora sub fimo dealbata, una cum superna radicis parte abscissa, cum oleo, aceto & pipere esitantur & in deliciis habentur. Ejus usus Italis debetur, a quibus *Seleri* vel *Celeri* vocatur.” *Geoff.* iii. 106. We blanch it with earth, and think it needs no pepper.

## S E C T. II.

The roots decocted are nourishing; their decoction diluent, deobstruent and diuretic, commended in obstructions of urine and of the menses, in the jaundice, &c. The herbs raw are more stimulating and attenuating, rarifying, as it were, in some degree the fluids: the seeds are aromatic, attenuant, diuretic, carminative; especially those of the Macedonian parsley, which is called alexipharmic.

“ Apii radix calefacit & siccatur fere gr. 3. incidit, aperit; unde & inter 5 rad. aperientes recensetur. *Ufus* præcipuus internus, urinam & menses movet, calculum pellit, regium morbum solvit. Semen efficacius est quam  
“ radix.

“radix. Annumeraturque seminibus calidis minoribus. Utraque præcipue interne usurpantur. *Præp.* Aqua ex caule, foliis & floribus Junio collectis.” *Schroder.* p. 537. — “Petroselinii radix (collect. vere) semen (coll. Augusto) & folia. *Vires.* Calfaciunt & siccant in prine. 2. attenuant aperiunt, extergunt, diuretica sunt, epatica, &c. *Ufus* præcip. in obstructione pulmonum, epatis, lienis, renum ac vesicæ & hinc in tussi, ictero, cohexia, calculo, sabulo, mensibus obstructis, asthma, &c. Extrinsecus resolvunt humores calidos (imprimis oculorum fugillationes), impediunt capillorum casum (cum abrotano); imminuunt lac (mammis imposita), adeoque mulierculis nostratibus usui sunt in ablactione infantum. *Præp.* Aqua still. ex integra planta cum radice, collecta initio veris.” *Id.* 646. — “Petroselinii Macedonici semen calf. siccat, 3. abstergit, attenuat, aperit, alexipharmacum est, unde & theriacæ compositionem ingreditur. *Ufus* præcipuus in urina & mensibus ciendis; in reliquis cum viribus petroselinorum speciebus adscriptis, convenit. Adhibetur & morbis veneficio introductis.” *Id.* p. 647.

1. There is a peculiar kind of acrimony, or spirit in each of these plants; which is not the same in the different parts of the same plant; as our senses easily discover. The smell is aromatic to some; fetid to others. But this spirit is volatile, flying off in drying, or decocting. Hence the decoction differs much from the juice or distilled water: and the dried from the green plant. — 2. I have observed after eating plentifully of raw parsley a fullness of the vessels about the head, and tenderness, or a slight inflammation of the eyes and face, as if the cravat had been too tight. Hence it may be said (by rarifying the blood) to hurt the eyes, and to be prejudicial to epileptics. “Apium gratia vulgò est. Namque rami largis portionibus per jura innatant & in condimentis peculiarem gratiam habent. Verum apud eruditos non aliud erutum terra in majore sententiarum varietate est. Distinguitur sexu. . . . Chrysippus & Dionysius neutrum ad cibos admittendum, immo omnino nefas; nam id defunctorum epulis feralibus dicatum esse, visus quoque claritati inimicum. . . . In puerperis vero ab eo cibo comitiales fieri qui ubera hauriunt.” *Plin.* l. 20. c. 11. p. 522. “Apium vitandum est, ceu naturaliter comitiales offendens.” *Alexander.* l. 1. c. 15. de morbo comitiale, p. 152. G. *Galen*, according to *Dalechamp*, was not of his mind: for in the directions he gives for the diet of an epileptic boy, among other things, he says, “Porum quin etiam interdum, & apium, & smyrnium degustare conferet.” *Vide* Documentum de Puero Epilectico, c. 4. class. 7. p. 179. F. But after that he says, “In esculentorum autem usu abundant illa quæ acria sunt, & virtutem incidendi habent, dummodo insigniter non sint mali succi, odoremque habeant, qui caput tenet: quorum ex genere sunt, quæcunque per caliditatem replent caput, quemadmodum vinum & sinapi & petroselinum, & daucus & cæpe, & smyrnium: hæc enim ultra modum inflammativa sunt, & malos humores generantia. Sinapi vero licet conveniat ad humores crassos incidendos, tamen ab eo abstinendum est, quoniam caput tentat.” l. c. H. These two passages are easily reconciled by what follows in this advice: and *Dalechamp* was mistaken, when he wrote that “Galenus in consilio pro epileptico, apium in comitialibus & laudat & imperat.” *Annot. in Plin.* l. c. — 3. According to *T. Hist.* p. 390, smallage chymically analysed yields, besides several acid liquors, much sulphur and earth, a considerable quantity of  
of



of urinous spirit (*assez d'esprit urineux*) and a little volatile concrete salt. "It contains, says he, much volatile oily salt, of which the sal ammoniac is not entirely decomposed, but dissolved in much phlegm and united to much earth." The analysis is from the *Register* of the *R. Acad.* You have the analysis at large in *Geoff.* iii. p. 104. where he mentions an urinous spirit, but not a word of dry volatile salt. — 4. They are commended very much by some; though others take more notice of their noxæ, adding, to what is noticed above, that apium causes barrenness. "Quod vero inquit Plinius (l. c.) eos qui ederint sterilefcere mares fœminasque, id falsum esse Belgarum adagium docet . . . quo significant, marem fœminamque ad venerem accendi." *Bod.* in *Theoph.* p. 803. *Oculis nocere visuique inviti credimus.*" *R. H.* And — 5. The Macedonian parsley seems to partake as much of the nature of cummin seed, as of parsley or smallage seed. It is sometimes called semen Alexandrinum, (*notante Hoffman.* p. 106): as the folia and radix Smyrni or Hippofelini, *i. e.* Hippofchini Theophrasti, vel Smyrni Dioscoridis, *B. P.* 154. or Alexander's, in some foreign countries are called folia & radix petroselini Macedonici. It differs little from smallage in its qualities.

"Hippofelinum alit bene, & præstat eadem quæ apium, sed efficacius. Venit in cibum cruda & cocta, tum radix concisa, tum folia tenella & caulis frequentius apud nos in jusculis verno tempore, ad sanguinem depurandum, rarius in intinctionibus ex aceto & oleo. In officinis nostris *olus atrum* dicitur, in transmarinis vulgo, sed falso petroselinum Macedonicum." *R. H.* p. 437.

### 3. ASPARAGUS.

#### S E C T. I.

*Asparagus, offic.* *Asparagus sativa*, *B. P.* 489. *T.* 300. *A. hortensis* & *pratenfis*, *J. B.* 3. 2. 725. *Asparagus, Park.* *P.* 503. *R. H.* 683. *A. sativus*, *Ger.* 1110. *A. domesticus*, *H. Ox.* 2. 3. *A. hortensis*, *Dod.* 703. *Asparagus inermis foliis setaceis, caule herbaceo*, *H. Cliff.* 121. *Asparagus.*

It grows wild on the Lizard point in Cornwall, and some other places in England; and is much cultivated for its *ασπαράγοι*, or young shoots, whence it has its name: so that it comes neither ab asperitate, as Varo; nor ab aspergendo, as Lemery would have it. Some derive *ασπαράγος* ab *ασπαρτος*, non latus. Vide *J. B.*

This is certainly the *Asparagus antiquorum*, vide *Bod.* in *Theophrast.* p. 600, *Plin.* l. 19. c. 8. p. 504, & *Dioscor.* l. 2. c. 152. p. 139. The roots are numerous, long, thick, spongy strings shooting round a thick head; of a greenish colour; sweetish subviscid taste, with little smell. It is called Sparage, *Asparagus*, but commonly Sparrow-grass. The seed, or berries, are now not used medicinally.

#### S E C T. II.

It is an alcalescent detergent, deobstruent and diuretic; commended in obstructions of the liver, spleen and urinary passages, in the jaundice, gout, gravel, &c.

“ Radix est diuretica, lithontriptica, & ex aperitivis 5 illis famosis non postrema. Calfacit & siccit, moderate discutit. Epar, lienem præcipue, & renes infarctu liberat; ideoque in decoctis eo respicientibus frequentissima est. Externe adhibetur (in gargarismis) pro lenienda odontalgia, & laxitate gingivarum. Semen easdem vires obtinet, sed usus est rarioris.” *Schroder.* p. 540.

1. Tho’ this root is soft and sweetish to the taste; yet it, as well as the heads, called *Asparagus*, leaves an urinous relish behind it, and makes the urine intolerably fetid: some say it causes also heat of urine if too much used. “ Cæterum, ut memoriae prodidit Avicenna Fen ultimæ libri 4to, asparagi in cibis suavi odore corpus totum commendant; verum urinam foetidam trahunt.” *Matthiol.* 374. Urinam cient utilissime, præterquam quod vesicam exulcerant.” *Plin.* l. 20. c. 10. p. 521. And *Helmont* makes it such a diuretic as the raphanus rusticus. “ Sunt & quædam quæ lotum provocant, stimulantque expultricem, quatenus putrilaginem urinæ generant: cujusmodi sunt raphanus, asparagus, &c. Vidi namque jurisperitum non ante afflictum lithiasi, nisi postquam a largiore asparagi usu domum rediisset, ac deinceps non tam calculis, quam subtilissimis arenis, per reditus aliquot annos, singulis forte quindenis, sub atroci dolore decumberet. Unde didici quod unius vesperi error, malum habitum renibus induxerit, qui vix in posterum tolleretur.” *De Lithiasi* c. 5. §. 18. p. 34. — 2. “ It does not redden the blue paper, *presque pas*, which makes me think its salt resembles tartar. vitriolar.” *T. Hoff.* p. 56. Yet according to Mr. *Geoffroy*’s analysis it yields but little of an urinous spirit. “ Ex radicum tenerarum & recentium lbv. prodierunt humorum lbiv. 3iv. 3viß. (of which 3xv. 3ij. gr. lxi. were subacid, and only 3j. 3v. g. xx. urinous, i. e. alkaline); olei 3j. 3j. gr. liv. Carbonis fuerunt 3v. 3j. gr. xvij. (unde cinerum 3j. 3ij. gr. xv. & inde) salis fixi alcali 3ij. gr. liv. (ergo terræ 3vj. gr. xxxij). Jactura in destillatione fuit 3iv. 3viß.” *Geoff.* iii. 137. where is also an analysis turionum viridium summit. lbv. whence salis vol. urinosi concreti gr. lx. though in other respects it was not much different. “ Ex hac analysi liquet asparagi turiones saleni ammoniacale nitrosum continere copiosum, & magis explicitum quam in radicibus, a quo vis diuretica videtur.” How he finds nitre here I cannot understand. “ Aiunt & canes si asparagorum decoctum hauserint emori. . . Cæterum amuleti ratione alligata radix, itemque haultum ipsius decoctum, partum impediunt sterilitatemque inducunt.” *Dioscoridis* l. c. Cats are very greedy devourers of the young shoots. “ Venerem stimulant.” *Plin.* l. c. “ Alvum solvere non credo; quin contrarium quia diureticum est medicamentum.” *Hoffman.* 117. Will asparagus break the stone? Is it such a diuretic as aqua calcis? *Minime.* “ Asparagi natura etiam S. Setho media posita est inter olera & carnes, &c.” Vide *Lob.* p. 458.

#### 4. F O E N I C U L U M.

##### S E C T. I.

1. Fœniculum, Fœniculum vulgare, *offic.* Fœniculum vulgare Germanicum, *B. P.* 147. *T.* 311. *H. Ox.* 3. 270. F. vulgare minus, acriori & integriori.



griori semine, *J. B.* 3. 2. 2. *Fœniculum*, *Dod.* 297. *F.* five *Marathrum* vulgatus, *Lob. Adv.* 347. *F.* vulgare, *Ger.* 1032. *Park.* 884. *R. H.* 457. *Anethum* fructu ovato, *H. Cliff.* 106. Common Fennel, or Finkle.

It is a native of several parts of England, Germany, &c. flowering in June, and producing seed in autumn. The root, leaves and seed are used. The root is large, branched, white, of a sweetish and somewhat aromatic taste, and soft smell: the seed small, oblong, striated and brown, of a more hot and aromatic taste, and fragrant smell. The leaves also are more aromatic and fragrant than the root.

2. *Fœniculum dulce*, *offic.* *Fœniculum dulce*, *B. P.* 147. *Ger.* 1031. *Park.* 884. *R. H.* 458. *H. O.* 3. 270. *F.* five *Marathrum dulce*, *Lob. Adv.* 347. *F.* dulce majore & albo semine, *J. B.* 3. 2. 4. *T.* 311. Varietas Prioris *Linnaeo*. Sweet Fennel.

In our gardens it commonly flowers the first year, and then dies: sometimes it stands two or three years, and produces a few seeds. It is said by *Cæs.* *J. B.* *R. H.* in some years to degenerate into the common fennel, not in Britain only, but also in Germany, (whence Dale and Miller say we get the seed) and in Italy. Hence the seed must be renewed there, from Greece or Syria (*Lob. Adv.*); from the Azores (*R. H.*), or some other country. Paris is now furnished with this seed from Languedoc, as it was formerly from Italy. Vide *Lém. Diët.* 224, and *Savary's Diët.* ii. p. 22. "Sweet fennel the third year yields as bitter, small, and sad coloured seed, as any in any country of this land." *Park.* "*Fœniculum dulce*, satum apud nos, degenerat in nostrum." *Hoffman.* p. 235. "*Fœniculum Romanum*, tertio anno in commune transit." *Tab. B. P.* *Finochia* seems to be only sweet fennel degenerating.

Sweet fennel seed is larger, longer, and more yellow or whitish, than the common, also sweeter and more aromatic. It is the only part of the herb used here.

This is reckoned the *μαραθρον Græcorum* & *Fœniculum Latinorum*. Theophrastus places it among the olera, and ferulacea. Dioscorides does not describe it, as being *vulgo notum*.

## S E C T. II.

The root is resolvent, diuretic, nephritic, vulnerary, scorbutic; called pectoral, stomachic and carminative; and commended in obstructions of the viscera, in the small-pox and measles, in scarcity of milk in nurses breasts, for shaking of the hands and other symptoms following the abuse of mercury, for weakness of the sight, roughness of the aspera arteria, &c. The leaves are more aromatic: the seed yet hotter, they are aromatic, carminative, pectoral, and a corrector of flatulent purgatives.

"*Officin. nat.* Herba seu summitates, radix, semen. *Vires.* Folia calf. 2. "sicc. 1. aperiunt, resolvunt, discutiunt, diuretica, carminativa, & bechica "sunt, ventriculum roborant, lac augment, visum confortant, asperam arteriam leniunt. Radix & semen calf. 3. adeoque insuper usus creberrimi in "humorum & flatuum discussione, & ad peripheriam expulsionem. *N. B.* Semen adhibetur sæpissime ad corrigenda purgantia, ut & ad flatum discutiendum.

“ dos. *Præp.* 1. Confectum semen. 2. Aqua ex integra planta. 3. Aqua  
 “ ex femine. N. ophthalmica est inter usitatissimas. 4. Oleum stillat. ex se-  
 “ mine. 5. Sal. com. ex planta incinerata.” *Schrod.* p. 591: who takes no  
 notice of the *fœniculum dulce*.

1. They are all sweet, more or less aromatic, but not acrid. The root may  
 be called *alimentum medicamentosum*, and so may the leaves when decocted.  
 The semen *F. vulgaris* (though hottest and most stimulating) is little used;  
 that of the *dulcis* very much: this is retained in the *London M. M.* though no  
 notice is taken of the common. — 2. Their aromatic spirit is volatile, especially  
 that of the herb and root, and flies off much in drying: the seed being more  
 oily keeps long; and affords oil plentifully by distillation. There is in apium  
 something strong and disagreeable: it operates much by urine, and is said to  
 diminish milk. But “*Fœniculi herba si edatur, mammas lacte replet; idem-  
 “ vero potest semen epotum, aut cum pituita decoctum.*” *Dioscorid.* l. 3.  
 c. 81. p. 205. It is recommended the same way in *Hippocrates De Morb. Mul.*  
 l. 1. p. 608. lin. 12. &c. from whom Dioscorides seems to have copied it.  
 “*Si lac deficiat. . . . Fœniculi nec non radicis illius decoctum propinato, &  
 “ hordeum decorticatum. . . . Adhoc conducit etiam hipponarathrum, &c.*”  
*Hipp.* l. c. and elsewhere. — 3. Fennel was much valued by the ancients; who  
 expressed and inspissated a juice from this plant three different ways. They  
 commend fennel in decoction, in renum & vesicæ vitiis; in wine, for bites of  
 serpents, obstructions mensium, &c. “*In febribus nauseam & stomachi ar-  
 “ dorem sedat, ex aqua frigida potum. Succus caulibus, & foliis expressus,  
 “ & in sole siccatus oculorum medicamentis utiliter additur, quæ ad aciem  
 “ visus excitandam reficiendamve præparantur, &c.*” Vide *Dioscoridem*. “*Pro-  
 “ dest & hydropicis radix ex vino cocta: item convulsis. Illinuntur folia tu-  
 “ moribus ardentibus ex aceto. Calculos vesicæ pellunt, genituræ abundan-  
 “ tiam quoque modo haustum facit, &c.*” *Plin.* l. 20. c. 23. p. 538. with  
 whom it is also “*pulmonibus & jocineribus laudatissimum.*” Nor are the  
 moderns less sparing of their commendations. It is almost a panacea with  
 Tabern: Vide *J. B.* “*Vidit Crato Monachum quendam, novem dierum  
 “ spatio ex suffusione curatum, radicibus fœniculi, in vino coctis, & decocto  
 “ oculis applicato.*” *R. H.* “*Tollit membrorum tremores a mercurialibus  
 “ ortos, velut helenium & bardana.*” *Herm. Cyn.* p. 57. “*Egregium sola-  
 “ tium est illis qui mercurialibus a lue venerea sunt curati.*” *Albin. M. S.*  
 Vide *Schol. Sal.* c. 35. p. 414. “*Fœniculum nobilitare serpentes, gustatu  
 “ senectam exuendo, oculorum aciem succo ejus reficiendo. Unde intellectum  
 “ est hominum quoque caliginem præcipue eo levare. Colligitur hic caule  
 “ turgescente. In sole siccatur, inungiturque ex melle.*” *Plin.* l. c. “*Depo-  
 “ nunt serpentes quidem exuvias suas prope fœniculum, quod vidi; sed visus  
 “ fit illis clarior, propter depositam illam epidermis partem, quæ corneæ  
 “ pertendebatur, quod pariter vidi.*” *Hoff.* 236.

“*Analyti chymica fœniculi folia recentia, plurimum humoris acidi, odori,  
 “ mediocrem olei tum essentialis tenuis, tum crassi portionem; modicum salis  
 “ fixi alcalini, terræ, & perparum spiritus urinosi, exhibuerunt. Semina ea-  
 “ dem principia præbent, sed oleum essentielle majori copia fundunt, cui  
 “ eorum virtus præcipue tribuenda est; subtile enim illud oleum, et sal acidus  
 “ tenuis ac volatilis, simul permixta sese invicem temperant, et compositum*  
 VOL. I. D d d “ con-



“constituunt, ad spiritus acidos dulcificatos chymicorum aliquantisper accedens.” *Geoff.* iii. 480. Who analysed it? Is not the analysis imaginary?

## 5. R U S C U S.

### S E C T. I.

Ruscus, Bruscus, & Oxymyrline, *offic.* Ruscus, *B. P.* 470. *Park.* 253. *J. B.* i. 579. *R. H.* 664. *Syn.* 262. *R.* five Bruscus, *Gen.* 907. Ruscum, *Dod.* 744. Ruscus myrtifolius aculeatus, *T.* 79. Ruscus foliis superne floriferis, nudis, *H. Cliff.* 463. Knee-Holly, or Butchers-Broom.

It grows wild in England, France, Italy, &c. flowering in summer. The roots are white, thick and knobbed, matted together, with large fibres, of a sweetish taste at first, then bitter.

Ruscus is called in Greek κεντρομυρρινη, (*i. e.* myrtus aculeata), οξύμυρρινη, μυρτακανθα, μυακανθα, by *Theophr.* 3. 17. p. 248 & 256; and μυρσινη αγρια, by *Dioscorides*, who well enough describes it, l. 4. c. 146. p. 295. “Castor oxymyrinen, myrti foliis acutis, ex qua fiunt ruri scopæ, ruscum vocavit.” *Plin.* l. 23. c. 9. In this chapter are the virtues of oxymyrline; and in l. 21. c. 27. p. 564. the virtues of ruscus, as if they were different plants. Galen mentions only its asparagi among the alimenta. And (*notante Cornario*) it is overlooked by Paulus and Aëtius. We have in *Virgil* “Horridior Rusco, &c” *Ecl.* 7. v. 41. & “Aspera Rusci vimma.” *Georg.* l. 2. v. 413.

### S E C T. II.

It is bitter, attenuant, deobstruent, hepatic and diuretic; commended in the jaundice, strangury, dropsy, female obstructions, &c. The young shoots are as efficacious as any part of it.

“Radix calf. & siccat temperatè, saporis est austeri & subamari. Incidit attenuat, aperit. *Usus præcip.* in obstructione epatis, urinæ (stranguria) mensium, &c.” *Schroder.* p. 667.

1. It is not acrid nor astringent, but sweetish at first, then pretty bitter, as are also its asparagi, even when well boiled. Green vitriol does not turn a decoction of the root black. “Folia sunt sapore amaro, & adstrictoria vi & efficacia pollentia.” *R. H.* — 2. According to Mr. *Lemery*, *Diët.* 469. “It contains much essential salt and oil.” And seems somewhat a-kin to common broom, and probably yields a considerable proportion of fixed salt, or is saponaceous. However its bitter stimulus is pretty fixed, and hence I call it attenuating. — 3. It is commended by *Dioscorides* as emenagogue, diuretic and lithontriptic. He says it cures the jaundice, strangury and head-ach. l. 4. c. 146. p. 295. *Riverius*, *Cent.* 3. *Obs.* 52, gives the following account of its usefulness in a dropsy, “Mendicus quidam, nomine Rafeau, hydropem patiebatur tribus mensibus, ex quo venter in amplissimum tumorem increverat, & cum propter inopiam, medicis auxiliis uti non posset, ex rusticæ mulieris consilio, usus est per mensem integrum decocto radice brusci. Purgatus est bis aut  
“ter

“ter simplici fennæ infuso; et his solis præsiidiis curatus est.” *J. B.* gives another instance of this kind; and mentions two cured of a hydrops matricis by the ruscus. Vide *J. B.* 1. 582. Mr. *T. Hist.* p. 529, says that an infusion of ruscus, scrophularia, & filipendula, in white wine, is used in France for the scrophulæ. — 4. Although there is a considerable difference in the qualities of these roots; apium and petroselinum causing a sort of turgescency in the juices; asparagus a putrescency; fœniculum a balsamic antiseptic softness, quickened with a gentle aromatic stimulus; and ruscus a saponaceous detergency: yet they are well and judiciously conjoined; and in decoction, if long used *pro potu communi*, seem to produce a more safe, and at the same time a more efficacious deobstruent diuretic medicine, for obstructions of the viscera in general, than any one of them could do. Yet, alas! these quinque radices aperientes are all banished the *London M. M.* *Tempora mutantur*, &c.

## S E C T. III.

The roots may be given in infusion or decoction to ounces: the seeds to ʒj. — A syrupus e quinque radic. aper. is now kept in some places; as are also aqua petroselini simplex, & composita, though they are but very little used. — The sem. petroselin. Macedonici is an ingredient in the theriaca & mithridatium. — The *Pharm. Edinens.* ed. 1756, has an aqua fœniculi, ex herba; oleum stillat. ex semine, (dulcis an vulgaris?); and direct the seeds in the infusum amarum cum senna. — The last *Pharm. Lond.* has an aq. fœniculi; which is a simple water drawn from the semen fœniculi dulcis.

## L E C T U R E XXXVIII.

## A R U M.

## S E C T. I.

**A**RUM *offic.* Arum vulgare non maculatum, *B. P.* 195. *T.* 158. *H. Ox.* 3. 542. *Park.* 372. Arum, *Dod.* 328. *J. B.* 2. 783. *R. H.* 1208. *Syn.* 266. A. vulgare, *Ger.* 834. Arum acaule, foliis hastatis, integerrimis, spadice clavato, *H. Cliff.* 434. Aron, Cuckow-pint, or Wake-robin.

It grows naturally in many places of Britain, France, &c. flowering in June, and ripening the berries in July and August. The Arum maculatum maculis candidis vel nigris, *B. P.* 195, is as good as the former and no better, scarcely deserving to be called a variety of it. Arum *offic.* is Arum vulgare maculatum et non maculatum, *B. P. Cod. Med. Geoff. and Dale.* Arum vulgare, *Ph. Leid. et Lond.* 1721. is A. maculatum et non maculatum, sine discrimine, *Schroder.* But in *Pharm. Nova Lond.* it is restricted to A. maculatum, maculis nigris, *B. P.* Wonderful accuracy!

The roots are white, tuberous and oval, about the size of an olive, of a burning hot taste, of no remarkable smell, and insipid when long dried.



It is not the ἀρον but ἀρισαρρον Dioscoridis, in the opinion of many: others make it a species of his ἀπανοντιον. Vide l. 2. c. 196-7-8. p. 158, & *Bod.* in *Theophrast.* p. 860. It is ἀρον ἀρε, not ἀρονος. The root is good from June to January inclusive.

## S E C T. II.

The recent succulent root is an acrid, peculiarly detergent sapo, inflaming the mouth and throat. But as it dries it becomes milder, and at length is reduced to an emollient only. It is commended internally in cold viscid infarctions of the viscera, in anorexies, asthmas, cachexies, scurvies, dropsies, &c. and externally as a syrapism or attrahens.

“*Officin.* Radix, quæ recens rari usus est, ob acrimoniam summam; exiccata autem crebrioris. Colligenda est cum germinare incipit, mense scilicet Martio. *Vires.* Calf. & siccat 3. Galeno gr. 2. (quod de arò nostrati, quippe quod acrimonia maxima, et exulcerante sale piperino præditum intelligi nequit) tartarum præcipue primæ regionis, tum quoque pectoris et pulmonum peculiariter incidit, resolvit et discutit. Proin usus ejus creber est in cachexia, asthmate, &c. Hernias curat, ciet urinam, obstructions viscerum resolvit. *Præp.* 1. Radix pp. maceratione in aceto stillat. atque exiccatione. 2. Fœcula. 3. Pulvis stomachicus *Quercetani.*” *Schroder.* P. 539.

1. Although at first tasting it is only soft and sweetish, yet it soon raises a burning heat on the tongue which spreads through all the mouth, and is not to be extinguished in a day's time. “This root is so acrid, that after it is chewed but for a little, the impression is felt for two or three days; besides it is very glutinous, and as it were farinaceous. From its reddening the blue paper, we may conjecture that it contains a salt, in some measure resembling such an one, as might result from a mixture of sp. nitri and salis ammoniac, dulcified by a very glutinous juice. (Would such a mixture any way in taste, resemble arum? I think not: The nitrous sal ammoniac differs toto cœlo from arum.) For by a chymical analysis, very acid liquors and volatile salt are drawn from it. The juice of the leaves inspissated a little over the fire lets fly an urinous spirit, when mixed with ol. tartari. The glutinous juice is destroyed by the fire separating much of the oil, phlegm and earth, which by their mixtures formed it: but some parts of the sal ari seem to be more disengaged than others, for in tasting the plant, one perceives as it were the cuttings of a lancet piercing the tongue with much vivacity.” *T. Hist.* p. 316. — 2. The root well dried loses its acrimony; and becomes a pretty mild farinaceous, but still saponaceous substance. Hence we see that its acrimony is not well accounted for by *T.*; and why it is used in bleaching linen, in England (*R. H.*), Holland (*Albin. M. S.*), and France (*T. H.*). In Italy the fœcula is reckoned cosmetic, and called there *greffa* (*Matth. Cæsp.*) though perhaps it acts only as a clear starch. The aqua stillatitia is said to have the same effect. Is this acrid? “Some recommend a tincture of it drawn with urine, but neither vinous spirits nor aqueous liquors extract its virtues, nor do they arise in distillation.” *New Disp.* p. 87. I poured boiling water on the fresh root, cut in pieces, and after a day's maceration, found the infusion

infusion quite free from acrimony in the mouth. — 3. It is commended externally for fixed pains, as the sciatica, for paralytic members, &c. as a detergent for foul ulcers, diseases of the skin, &c; a cataplasm ex fol. & sterc. vaccini for the gout. Vide *R. H.* And internally, even recent, in a proper dose, it may be of great use, whenever either from viscid phlegm, a glutinosum spontaneum, or an inertia solidorum, nature wants a brisk stimulus. Hence *Boerb. Lib. de M. M.* among the stimulantia composita contra glutinosa, directs these pilulæ: “R Gum. ammoniaci & opoponacis āā ʒj. bulbi ari recentis ʒij. saponis Veneti ʒj. ol. stillat tanacetii gut. x. M. f. pilulæ sing. gr. iij. deaurandæ. Capiat i. omni trihorio de die.” This is every way a judicious prescription, and efficacious “resolvens, stimulant, at saponaceum medicamentum.” It is probably also a purgative root; and the lush planum *Mesue, Simpl. c. 24. p. 74.* “Mesuæus eam velut catharticum præstantissimum commendat in morbis chronicis & contumacibus, præsertim cum cepâ (it should be *sapa*) aut passularum decocto temperatam. In eadem sententia fuisse videtur Ant. Constantinus pharmacopœæ Gallo-prœvinctialis author, qui cachecticos hoc electuario purgare solebat. R Rad. aronis lotarum & mund. ʒiv. contunde in mortar. marmor. & per setaceum pulpa trajiciatur, cui adde menthæ pulv. ʒiij. fol. absynth. ʒiʒ. f. opiata, quæ egregie purgat ad ʒʒ. vel ʒj. in cachexia.” *Geoff. iii. 126.* A large dose indeed, if the roots were not also boiled, which is not ordered here! Who could take it? But what is painful in the mouth is not always so in the stomach, e. g. brandy, capsicum, &c.

“Analyti chimica ex radicum recentium lbv. prodierunt humoris limpidi, saporis & odoris herbacei subacris cum sale alcali occulto, & obscurè austeri ʒx. ʒj. gr. vi; humoris subacidi austeri, odoris empyreumatici, tandem fusci obscuri saporis tum acidi, tum acris lbij. ʒviiij. gr. lxxvj; humoris rufi tum acidi, tum alcali, & sale volatile urinoso imprægnati ʒij. gr. xxxvi; olei spissioris, & ad instar extracti, ʒij. ʒviij. gr. xij. carbo massa nigra in retorta superstes pendebat ʒvj. ʒviij. gr. xxxvj, (unde cinerum ʒviij. gr. lx, & inde) salis fixi mere alcali ʒij. gr. lx. Jactura in distillatione fuit ʒv. ʒiv. gr. lx; in calcinatione ʒv. ʒvj. gr. xlviiij.” *Geoff. iii. p. 125.* But here the sum total is lbv. ʒij. so that there are two ounces too much. *Qu.* Whether are these to be deduced from the jactura or not? The jactura in calcinatione is ʒj. too little. But what is most remarkable is the sapore humorum. What does he mean by sal ammoniacus spiritu nitri saturatus? He says rightly, “In signis illius acrimonia a spiritu seu oleo quodam subtili & acerrimo, quale in cochlearia,” (But the following two are ill added), “helleboro, croco deprehenditur pendere videtur, quod sola radicis exsiccatione avolat. Nam radix recens acrior est quam exsiccata, quæ extrinsecus fere insipida est, dum in medio conservat acredinem haud mediocrem.” And indeed the acrimony or acrid spirit of cochlearia, raphanus rustic. and sinapi, appears to be of the same kind with that of arum; but is far from penetrating so deep, or making such a lasting impression. Besides, if the above analysis be right, “and that of cochlearia in the same author, there is another remarkable difference; for what came first over in the analysis arum was “saporis & odoris herbacei subacris & obscure austeri,” but in that of cochlearia, it was “saporis acris, linguam pungentis, odoris penetrantis, cochleariam crudam refrigerantis.”



"ferentis." *Geoff.* iii. 343. "Primo distillatione prodiit aqua pellucida, quæ acrem atque pungentem halitum eructabat. Huic successit liquor . . . saporis acidi . . . vividè cum alcalicis effervescens." *Cartneus. M. M.* 424.

As arum may be divested of its acrimony by drying, so it may by decoction, and that sooner. "Luscrispi radix cocta imbecillius medicamentum, non cocta valentius." *Mesue* l. c. "Aaron aceto bullitum mitescit, magnorumque casuum medela fit. Quapropter scholæ correctiones instituerunt; atque utinam illas non ridiculas, non castrationes, non virium ablationes potius." *Helmont. Pharmacopolum*, §. 47. p. 444. "Acre alcalescens, antiscorbuticum est." *Boerb. Lib. de M. M.*: but acescens according to *Cartneus. M. M.* i. p. 424.

### S E C T. III.

I cannot determine the full dose of the recent root; but I should not choose to exceed gr. v: though if it be well dried it may be given to ℥j. ij. iij. according to the time it has been kept. The fœcula may be given to ʒj. and upwards: the pulvis ari compositus to ʒj. safely; but ʒʒ. is reckoned the common dose. Dr. *Quincy* calls this compound powder an insignificant composition, *Pb.* p. 132 & 429. And *Culpepper* after translating the then college recipe for this powder (in which is the water-flag instead of the acorus vulgaris) adds, "And when you have done, tell me what it is good for?" *Dispens.* p. 122. And if prepared by a triple maceration in wine, as is directed for *pulv. Birchnanni*, or in vinegar, as we have it in *Schroder*, it must be still of less value. "In præparatione radicum ari quilibet, per nos, suo abundet sensu. Nos intensam ejus acrimoniam veriti, præparare eam nulli dubitamus; cum bene observante id Cl. D. Dan. Ludovico, in *Pharm. sua*, p. 485, etiam exsiccata & vetustior deglutientium fauces laceßere haud desinat." *Pb. Aug.* in fol. p. 268. "Radix, sive sicca sive recens, a ʒʒ. ad ʒj. & ℥iv. intus exhibetur. . . Recens radix decocta & melle excepta medetur pectoris morbis omnibus pituitosis; expectorat enim validissime. . . Asthmaticos maxime juvat ʒij. pondere sumpta." *Geoff.* iii. 126. *Verbo*, I would give it fractâ dosi, or to a few grains, and repeat it pro re nata, so long, to wit, as it retains its acrimony; or in Boerhaave's way.

## A R I S T O L O C H I A.

### S E C T. I.

1. Aristolochia, Aristolochia rotunda, *offic.* Aristolochia rotunda, flore ex purpura nigro, *B. P.* 307. *T.* 162. *H. Ox.* 3. 509. A. rotunda, *Dod.* 324. *J. B.* 3. 559. *Ger.* 846. *R. H.* 761. A. rotunda vulgatio, *Park.* 290. Aristolochia caule infirmo ramoso, floribus solitariis erectis, *H. Cliff.* 432. Round Birthwort, or Round-rooted Birthwort.

This is a thick, solid, tuberous root, brownish on the outside, yellow within, of a very bitter taste, and somewhat aromatic smell.

2. Aristo-

2. *Aristolochia longa*, *offic.* *Aristolochia longa vera*, *B. P.* 307. *T.* 162. *Park.* 292. *R. H.* 762. *H. Ox.* 3. 509. *A. longa*, *Dod.* 324. *Ger.* 846. *J. B.* 3. 560. Varietas prioris *Linnaeo*. Long or Long-rooted Birthwort.

The root is thick, long, wrinkled, and browner than the round without, whitish within, of the same taste and smell, but a little milder.

3. *Aristolochia clematitis*, *Aristolochia tenuis*, *offic.* *Aristolochia clematitis recta*, *B. P.* 307. *T.* 162. *H. Ox.* 3. 509. *A. clematitis vulgaris*, *J. B.* 3. 560. *A. clematitis*, *Park.* 292. *R. H.* 762. *A. saracenicæ*, *Dod.* 326. *Ger.* 847. *Aristolochia*, caule erecto, simplicissimo, foliis cordatis petiolatis, floribus lateralibus confertis, *H. Cliff.* 432. *Aristolochia tenuis*, *Pb. Lond.* p. 5. Creeping Birthwort.

This root is longer and slenderer than the former, of a dark brown colour without, whitish within, of an aromatic and bitter taste, and pretty fragrant smell; more agreeable than either of the former.

They all grow in France, Spain, Italy, &c. flowering in May and June.

"All the *Aristolochies* are found in the meadows and vineyards of Languedoc."

*Savary Dist.* i. 142. They are generally thought to be the three *Aristolochiæ*

*Dioscoridis*, viz. *A. rotunda* fœmina dicta, *A. longa* seu mas, & *A. clematitis* (*i. e.* fœmentosa) dicta, seu tertia longa; though it is not very accurately described: for, according to him, flores rotundæ candidi pileolorum similitudine; longe vero purpurei; & folia clematidis minori sempervivo similia, & flores rutæ. Vide l. 3. c. 4, 5, 6. The characters of the other kinds however agree tolerably well. But it is more controverted, whether the *Aristolochia λεπτη*

or *tenuis* in the *theriaca andromachi* is the *A. clematitis Dioscoridis*?

In the *Old London Dispensatories*, the *Aristolochia longa* was ordered for it. In the *New* the "clematitis, vel, ejus loco, *A. longa*." But there being *Arist. ten.*

5ij. in more than 15xix. *theriacæ*, it matters not which be taken. Vide *Bod.* in

*Theophr.* 1109. *Clar. Pharm.* p. 287. "Sed quæ ex his *theriacæ* debetur? . . .

"Omnes consentiunt in clematit. additur ratio ex Galeno, imponitur the-

"riacæ odoris gratia; hæc vero cæteris fragrantior . . . Rotunda est tenuio-

"rum partium, longa crassiorum comparatione inter se. Ideo longa videtur

"esse calidior. . . In longa uterque sapor (amaror & acredo) est manifestior,

"præcipue amaror." *Hoffman.* p. 108. This did not appear to me: probably

the freshest is the strongest of the first two. The *A. rotunda* stands first in the

*diascordium*; and *Galen* says, "Ex illis omnium est subtilissima rotunda, &

"ad omnia efficacior." *Simpl.* l. 6. c. 43. E. Hence I make *Aristolochia* &

*A. rotunda synonyma.*

*Aristolochia*, ab ἀριστος & λεχεια, *i. e.* optima puerperis. "Inter nobilissi-

"mas *Aristolochiæ* nomen dedisse gravidæ videntur, quoniam esset ἀριστη

"λεχευσαι (or λεχευσσαι) nostri malum terræ vocant." *Plinius* l. 25. c. 8.

p. 638. *Cicero* (De Divinatione) derives it from its inventor *Aristolochius*. Vide

*Bod.* p. 1107.

"Fuchsius and Dodonæus agree that the *A. clematitis* may be used in the

"place of the other two, since it wants neither bitterness nor acrimony;

"Anguillara remarks that its root is more aromatic, and *J. B.* doubt not but

"it was the *Aristolochia tenuis* of *Andromachus* and *Galen*." *T. Hist.* p. 175:

and it is here most common; though omitted in our *Pharmacopœia*.



## S E C T. II.

They are bitter, aromatic, attenuant, diaphoretic, uterine, hepatic, antispasmodic, anthelmintic; called pectoral and cephalic; and commended internally in female diseases (as obstructions of the menses and lochia, green-sickness, hard labour, retention of the secundines, vapours, &c.) for asthma, hiccups, flatulent colics, worms, &c. and externally for foul ulcers, fistulas, gangrenes, carious bones, &c. The sponginess of the *A. longa* makes it the fittest for dilating tents. The creeping root is an agreeable stomachic.

“*Officin. nat.* Aristolochiæ rotunda radix sola. Longæ radix & folia. *Vires.* Utraque cephalica, epatica & pulmonica imprimis est: calf. & siccat. 2. completè; attenuat, aperit. Hinc prodest ad tartaream mucilaginem resolvendam & expectorandam; ad menses ciendos, tumores internos rumpendos, venena discutienda. Insuper longæ infusio ad scabiem exiccandam vel vulgo hic usitatissima est. Extrinsecus adhibetur usu creberrimo ad exiccanda & mundificanda vulnera. Rotunda tenuiorum est partium quam longa, adeoque efficacior, & imprimis mensibus ac secundinis ciendis celeberrima: calf. & sicc. 3. aperit attenuat. *Præp.* Aqua ex foliis, & radice *A. longæ.*” *Schrod.* p. 538.

1. The two first are not only very bitter, but also pretty acrid and nauseous, or disagreeably aromatic. “Ambæ gustu amaræ ac virulæ.” *Dioscorid.* The third is more agreeable. “Aroma redolet,” says *Dioscorides*. All three keep long and well, especially the first. — 2. Mr. *T.* says, “The leaves Arist. clematidis rectæ, *B. P.* are very bitter, and do not redden the blue paper: the root reddens it a little; it is aromatic and very bitter. This plant by a chymical analysis gives much of an acid liquor, much oil and much earth; a little of an urinous spirit, no volatile salt concrete: its fixed salt does not turn a solution of sublimate yellow; whence it may be conjectured, that the salt of the aristolochia comes near to the nature of (or resembles) the salt of coral, like what that salt would be, if more acid were poured on, than suffices to saturate the coral. Besides the sal aristolochiæ contains a little sal ammoniac, and is envelop’d in much sulphur. This plant is aperient, sudorific and deterfive, and vulnerary.” *Hist.* p. 176. *N. B.* The above analysis is taken from the *R. Acad.*

“Analyti chymica aristolochiarum radices multum admodum olei & terræ præbent, nullum salem volatilem concretum, medicrem spiritus urinosi quantitatem; phlegma vero acidum uberrimum. Sal vero fixus ex cineribus extractus, sublimati corrosivi solutionem turbidam & lactescentem efficit non flavum. Præterea harum radicum succus chartam cæruleam, seu heliotropii succo tinctam, rubro colore inficit. Unde liquet aristolochiæ virtutem pendere a sale quodam essentiali, composito ex terra, sale acido plusquam saturatâ, cum salis ammoniaci portione mediocri, multoque sulphore conjuncta.” *Geoff.* ii. p. 15. Is it fair dealing, to quote so much word for word from *T.* without naming him; and at the same time to give the analysis of the plant arist. clematidis, as if it were that of the radices aristolochiarum? Though he might thus have imposed on his scholars, he should never have published it, the fraud being so easily discovered.

## S E C T. III.

They may be given in substance to ʒj: in infusion or decoction to ʒij. The longa or tenuis are used in the theriaca.

“Fred. Hoffmannus ad præcavendam pulmonum exulcerationem, quæ hæmoptoen cum tussi subsequi solet, foliorum aristolochiæ longæ infusio-  
nem commendat, sic exhibitam. R Folium unum in aq. flor. tussilaginis  
ʒij. infusum per noctem, primo die; 2<sup>o</sup> die folia ij; 3<sup>o</sup>. ij; 4<sup>o</sup>. iv; 5<sup>o</sup>. v.  
6<sup>o</sup>. vj; 7<sup>o</sup>. vij; 8<sup>o</sup>. vj; 9<sup>o</sup>. v; 10<sup>o</sup>. iv; 11<sup>o</sup>. ij; 12<sup>o</sup>. ij; 13<sup>o</sup>. j, folium.”  
*Geoff. ii. p. 16. A very whimsical remedy!*

## A S A R U M.

## S E C T. I.

Asarum, Asarabacca *offic.* & quandoque Nardus rustica est Asarum, *B. P.* 197. *T.* 501. *Dod.* 35. *Ger.* 836. *J. B.* 3. 548. *R. H.* 207. *Syn.* 158. *A. vulgare, Park.* 266. *A. vulgare rotundifolium, H. Ox.* 3. 511. Asarum, foliis subcordatis, petiolatis, *H. Cliff.* 178. Asarabacca.

It grows wild in France, Italy, &c. and, as we are told, in the woods of Lancashire, and some other parts of England. Vide *Syn.* l. c. “It is planted  
“with us in gardens, and flowers in June, but the dried roots are brought  
“from Leghorn.” *Miller Bot.* 57. “It is brought to us dried from Dau-  
“phiny, Languedoc and Auvergne. It comes also from the Levant.” *Lem. Dict.* p. 54.

The roots are slender, very fibrous, of a grey or brownish colour; of an acrid, bitterish, nauseous taste; and somewhat aromatic smell, not unlike that of the nardus celtica, especially when dried. These and the leaves are used. . . .

“Saporis acris pungitivi, nauseosi, cum levi adstringentia, odoris ingrati nardini.” *Herman. M. S.*

“Saporis acris pungitivi, nauseabundi cum levi quadam astringentia, odoris non ingrati.” *Dale* 79. “The leaves are very bitter, and redden much the blue paper; the roots redden it also, and are very bitter, their smell resembling that of the great valerian.” *T. Hist.* p. 318.

“Eorum error corrigendus est, qui bacchar rusticum nardum appellavere. Est enim alia herba sic cognominata, quam Græci asaron vocant, cujus speciem figuramque discimus in nardi generibus. Quinimo asaron invenio vocitari quoniam in coronis non addatur.” *Plin.* l. 21. c. 6. (Ab *a priv.* & *αἰσῶ orno.*) *J. B.* l. c. is at great pains to prove the chapter of baccharis in *Dioscorides* spurious: but *Bod. in Theoph.* p. 1022, seems to demonstrate the contrary, and that asaron and baccharis are very different plants; as is evident from *Dioscorides* l. 1. c. 9. de asaró compared with l. 3. c. 51. de bacchare: however their having been confounded is the reason of our calling asarum asarabacca in *English.* “Latinè etiam nardum rusticum & nonnulli perpen-

“sam vocant. Est autem perpenfa etiam baccharis *Plinio*, l. 21. c. 21.



"Macer vulgaginem dicit, ait enim, Est asaron Græce vulgago dicta Latine." *Dod.* 358. Dioscorides's description of the asaron agrees pretty well with this plant.

## S E C T. II.

Both root and leaves are violently emetic and cathartic; are said to evacuate phlegm, bile and melancholy, or atra bilis, and to be deobstruent, diuretic and emenagogue; and commended in the asthma, jaundice, female obstructions, dropsy, ague, &c. They are also powerful errhines.

"Crassam pituitam, bilemque utramque per vomitum ac nonnunquam per secessum violenter expurgat. Calf. & siccat 3. diureticum est ac emenagogum insigne, epar, lienem, vesicamque fellis aperit. Hinc utile in arthritide, hydrope, febribus præcipue tertiana & quartana, in ictero, &c. Dosis radice a ʒss. ad ʒj. in substantia; a ʒj. ad ʒiij. in infusione. Folia exhibentur N°. vi. vii. viii. ix. infusa, cocta & expressa. *Præp.* 1. Extractum alcalisatum, quod venit nomine coaguli asari fit sp. vini. 2. Diasaron Fernelii." *Schroder.* 757.

1. As the acrimony of this plant is evident by its taste; so it is also by its effects when snuffed up the nose. A few grains of it in powder thus used, proves a strong errhine, evacuating plentifully the mucus, and sometimes swelling all the head. Thus it has sometimes cured head-achs, tooth-achs, deafness. But the patient must keep warm sometimes for a week. "The usual way is to take near ʒj. going to bed for three or four nights together, and by the next morning its operation will be very sensible, though it occasions little or no sneezing, unless by the acrimony of the humors which drain off, and irritate the fibres in their passage." *Quincy Ph.* p. 188. He observes also that its pungency is not immediately felt upon taking, but after some time it makes the nose run very much, and sometimes discharge blood itself. But his dose is too large. I have even known two or three grains of it taken once only operate violently, and the next day bring blood. "Pulvis foliorum errhinum est, præstantissimum de quo. J. Colbatch, in tentamine physico-medico *de alcalibus & acidis*, &c. mentionem facit, antequam novissime detecto a quodam D. Pitt, pharmacopæo Worcesteriensi. Narrat enim gr. iij, iv, aut v pulveris foliorum adversus cephalalgiam, cubitum euntibus tabaci more exhibita, efficere ut non turbata ægri quiete manè sequenti per nasi glandulas materiæ serosæ non parva quantitas exoneretur; quod verum esse sæpius comperi: imo hunc pituitosum fluxum per tres dies continuos perseverasse observavi, cum summo ægri levamine. Idem pulvis surditati nonnunquam medetur, annotante eodem auctore, modo in aures gr. j. aut alterum insuffletur." *Geoff.* iii. 132. who found this errhine successful "in oris & linguæ paralyfi;" and thinks it may be of use in several diseases of the head. — 2. According to *T.* "Asarum contains a great deal of volatile oil of aromatic, loaded with sulphur, acid, and terrestrial parts. By a chymical analysis much oil and earth, a little urinous spirit, no volatile salt, but several acid liquors are got from it." *Vid. Hyß.* p. 318. — 3. There are several singularities in asarum, if authors are to be credited. (*α*) *Mesue* says, "Quo tenuius est tritum, eo magis urinam movet, minus autem alvum ducit."

“ ducit.” (*De Simpl.* c. 22. p. 45.) And not at *Matthiolus* (p. 36.) quotes him, viz. “ Diuturna non indiget contritione; diutius enim contritum facilius vomitiones quam alvum ciet: hæc Mesue.” . . . (β) That it does not communicate its cathartic, but only its diuretic, virtues to water either by infusion or decoction. Vide *T. Hist.* 319. *R. H.* 208. “ Valentius agere, inquit Mesue, si infundatur in sero. Quod audiant nostri qui in vino faciunt, *Cæsalp.* 3. *Hist.* 36.” *Hoffman.* p. 11. But *Mesue* says only, “ Valentius agit cum sero lactis, spica & hydromelite.” l. c. And *Riverius* observes that a decoction rad. asari ʒij. in jusculo pulli, vel aqua hordei & passularum, is given as a strong vomit in tertians. *Prax.* l. 17. c. 3. p. 438. . . . (γ) That infused in wine it is emetic, but by decoction first the emetic and then the cathartic virtue is driven away. “ Idem Mesue monet, cum pro purgatione coquimus, debere coctionem esse mediocrem, alias perituram, primum quidem vim vomitoriam, deinde autem purgatoriam quoque.” *Hoffman.* p. 11. But *Mesue* l. c. says only, “ Mediocriter coqui potest.” “ Asarum crudum quanta cum anxietate vomitum ciet, eique præsens venenum testatur stomachus! & quam facile bullitione id recedit, mutaturque virus in deoppilans, diureticum, tardarum febrium remedium, quod occultatum in eo aroma prodit.” *Helmont.* *Pharmacopolium.* §. 47. But he says also *De Magn. Vuln. curati.* § 30. p. 708, “ Si quisquam folia asari decerpando sursum vellicaverit, purgabunt aliam, i. e. tertiam personam tractionis nesciam, per vomitum tantum: si vero deorsum carpando torqueantur, solum deicient alvum.” Although the emetic or cathartic virtue of few simples rises in distillation, yet long coction may, and is generally thought to weaken them; though perhaps not near so much as some imagine; (*N.B.* Extractum jalapæ, pil. rudi *Ph. Lond.* veteris & novæ.) And although asarum be pretty sulphureous, yet since it yields its virtues to wine, as is confessed, which are not volatile, it no doubt will yield them also to water, and that sooner by decoction than infusion; so that an aqueous extract may be as strong or stronger than the substance. “ Si radix minutissime pulveretur, eò efficacius vomitum urinam & menses pellit. Si vero minus accurate conteratur per inferiora solummodo purgat, sine insigni ventriculi subversione. Si decoquatur in vino retinet vim vomitoriam & cathartica: si vero decoquatur in aqua simplici, a qua sulphurea ejus pars solvi nequit, vis emetica & cathartica perit, & sit egregie alterans medicamentum, diaphoreticum & diureticum, in morbis chronicis & febribus intermittentibus summæ utilitatis. Quod quidem primum ab *Helmontio*, & post eum ab *Zwelfero*, & *Cl. T.* observatum fuit.” *Geoff.* iii. 131.—4. I poured aquæ bullientis ʒvj. on fol. asari ʒij: and on the next day had an infusion of a brandy colour and of a bitter subacid nauseous taste. Solutio vitrioli turned it muddy, dark and greenish, and soon precipitated plenty of a greyish-green sediment. It made no change in the colour of the syr. violarum, nor of the blue paper; though it gave the tinct. heliotropii a florid redness. Ol. tartari did not make it fetid, or give it an urinous smell.—5. It is a violent emetic. “ Ante aliquot annos civis hujus loci, vir quadratus, difficulter mobilis, sumit, suavis aniculæ, pulverem asari foliorum & radicis ad integrum cochlear. Inde vero hypercatharsin patiebatur lethalem; frustra a medico datis antidotis.” *Wedel. Amœnit. M. M.* p. 240. & *De Medic. Faculta*, p. 158. “ Calefaciendi, urinas vomitumque ciendi vi præditæ sunt; “ ideoque



“ ideoque hydropicis, & inveteratæ ischiadi profunt, ac menses quoque proliciunt. Senis drachmis ex mulla bibitæ radices veratri albi modo purgant. Miscentur & unguentis.” *Dioscorid.* l. i. c. 9. p. 10. It is also an efficacious alterative in inveterate obstructions; though I cannot say with Mr. Geoffroy that it strengthens the viscera. “ Non tantum est insigne diureticum, sed & secundinas mensesque movet. Unde meretriculæ nostræ plus satis frequentant decoctum ipsius cum sentiunt se gravidas.” *Hoff.* p. 11.

“ Analyti chymica ex rad. & folior. recentium ℥v. prodierunt humorum ℥iv. ℥iv. 3viß. i. e. ℥xxxvij. humoris aliquantisper odorati, subamari, obscurè acidi, & ℥iij. humoris tum acidi tum urinosi; olei spissioris ℥ij. gr. xv. Carbo pendebat ℥vj. gr. xij; unde cinerum ℥ij. gr. xlvij, & inde salis fixi mere alcali 3vij. gr. lxvi. (so terræ ℥j. gr. xlvj). Jactura in distillatione fuit ℥iij. 3j. gr. ix: in calcinatione ℥iij. 3viß.” *Geoff.* iii. p. 130.

## S E C T. III.

They may be given as an *emetic* in powder to 3j. though perhaps 3ß. is too much, at least it need not be exceeded; in infusion to 3ij: as an *alterative* in substance to 3ß: in infusion to 3ß. The leaves are in the pulv. cephalicus.

To determine the dose by the number of leaves renders it uncertain. Yet No. 6. or 8. recent have been bruised with a liquid (whey, wine, or the like), expressed, and so taken; and no doubt double, yea triple, the weight of the dose of the powder may be taken of the green leaves. “ Datur in substantia a 3ß. ad 3j; in infusio cum vino a 3j. ad 3ij. Ad menses pellendos datur ad gr. vii. Solent ejus vaporem suscipere in auris tinnitu.” *Albin. M. S.*

“ Pro cienda urina mensibusque sufficit 3ß: pro alvi dejectione opus est 3j. In substantia dat Mesue purgandi gratia a 3j. ad aureos ij. (= 3viij). In decocto vel infuso ab aur. ij. ad iv. Cæsalpinus in substantia a 3j. ad 3iij. ascendit: in infuso feri ad 3iv. Si quis folia velit, sufficere ait Dod. viij. vel ix. numero; verum trita cum liquore aliquo & expressa.” *Hoffman.* p. 12. *T.* gives 3ß. of the roots infused in wine as an emetic, in the ague, dropsy, gout, sciatica; but especially he reckons it good in the diarrhœa and dysentery. His dose radicum is 3j. foliorum 3ij. in powder. And he says, a good diuretic is prepared by infusing rad. 3j. in a chopin of water, for a night, over hot cinders, and drinking it strained in the morning. l. c. The pulv. sternutatorius *Ph. Lond.* consists of equal parts of the fol. asari, majoranæ, & mari Syriaci & florum lavendulæ. Does the sneezing prevent the asarum’s penetrating and acting as it would do by itself? Certainly. It is therefore improperly joined with those things which occasion sneezing.

ASPARAGUS. *Vide* p. 382.

## B A R D A N A.

## S E C T. I.

Bardana, B. major, Lappa, Lappa major & Personata, *offic.* Lappa major, Arcium Dioscoridis, *B. P.* 198. *T.* 450. *H. Ox.* 3. 146. Bardana sive Lappa major,

major, *Dod.* 38. *B. major*, *Ger.* 809. *R. H.* 332. *Syn.* 197. *B. major vulgaris*, *Park.* 1222. *Personata* five *Lappa major* aut *Bardana*, *J. B.* 3. 570. *Aretium*, *Cæs.* 488. *H. Cliff.* 394. Great Burdock, or Clotburr.

It is very common by the way sides, flowering in June and July the second year. The roots and seed are used.

It is a large root, black without, white within, of a sweetish taste with a smoaky flavour, and soft unpleasant smell. The seed is oblong, flattish and brown, of an aromatic bitterish taste, and sweet smell, “*Radix mundatur a corculo.*” *Nucl. Belg.* 39.

“*Lappa dici potest vel ἀπο τῆ λαβεῖν prehendere, vel λαπτειν lambere, quod prætereuntium vestibis adhæret. Personata autem dicitur, quod folia ejus prægrandia veluti larvæ aut personæ vice obtendi solita essent. Veteribus aretion aut arcion dicta creditur, verum ratio nominis ignoratur.*” *R. H.* “*Vocatur in officinis etiam Bardana, voce vel Gallica vel Hispanica.*” *Hoffman.* 279. Vide *Bod. in Theoph.* 884. *Dioscorides’s* description of the Ἀρκείον agrees better to this plant, than that ἀρκτις. Vide l. 4. c. 107. and *Plin.* l. 25. c. 9.

## S E C T. II.

This root is a subaromatic medicinal nutriment; diuretic, antiscorbutic and vulnerary; called pectoral and uterine; and commended in the consumption, asthma, gravel, rheumatism, gout, ague, French-pox, &c. The leaves are of the same nature. The seed is more aromatic and diuretic and carminative.

“*Siccat, est pulmonica diuretica, diaphoretica extergens, subastringens, hinc convenit in asthma, calculo, expuitione sanguinis, in vulneribus inveteratis, tumore lienis, aliarumque partium; in arthriticis morbis (quibus peculiari proprietati conferre statuitur) semen insigne censetur lithonripticum. Extrinsecus imponuntur folia vulneribus inveteratis, articulis luxatis, ambustis, &c.*” *Schroder.* p. 544.

1. It is neither acrid nor bitter, but sweetish, leaving a not unpleasant flavour behind it. The young stalks are peeled, boiled and eaten like artichokes in some places. The seeds are aromatic and perfumed as it were. “*The leaves are bitter, do not redden the blue paper, their foot-stalks sweetish; the roots have at first the same taste, but afterward that of artichokes.*” *T. Hist.* p. 207. — 2. The juice of it, like that of artichokes, either raw or boiled, stains the hands and mouth, which are easily cleaned by acids, though by neither soap nor alkalies. “*Lappa major incensa deflagrat in modum salis petræ, & pari ratione sput ignem.*” *Eph. Germ. An.* 3. Obs. 222. *R. H.* I made the experiment, but could not observe any thing like the flashing of nitre, when the dried leaves were burning. — 3. It is much commended externally for wounds and ulcers. According to Mizaldus, the leaves, applied to the head, draw up the matrix; to the soles, pull it down. “*Et est remedium præstantissimum adversus suffocationes, præcipitationes, & dislocationes maritricis.*” *J. B.* But it is more used internally; and that in some of the most obstinate diseases. I think it safe in them all. “*Retulit mihi Valselius, quondam Pensionarius Mechlinensis, se, cum decumberet ex doloribus articulorum, ut nulla membra movere posset, bibidisse decoctum cervisæ, in*”  
“qua



“qua radix lappæ incocta erat; quo epoto, cum nullis remediis, a medicis  
 “curari possit, plurimum minxit lotium album instar lactis, & a doloribus  
 “curatus fuit.” *Forrest.* l. 29. Obs. 7. “Quartanam in Henr. III. Gal. Rege  
 “decocto lappæ majoris, a P. Pena deletam fuisse testantur Formius & Vel-  
 “schius. Empiricus Parisiensis plurimos quartanarios decocto hujus radice,  
 “ex vino albo curavit. *R. H.* “Epiphanis Ferdinandus dicit quod [radix]  
 “vim habeat prolongandi membrum virile.” *Etmuller.* vol. i. p. 522. “Fol.  
 “& caulium decoctum pleuriticis affatim propinatur, sumptis prius x vel xii  
 “ovorum germinibus; & hocce remedio, sudor copiosus diffuit.” *Geoff.* iii.  
 159. N. B. *Hæc & alia plurima a T. & R. H.* The good old Dutcheffs of  
 Argyle told me, she found much benefit from a decoction of burdock in a  
 rheumatic fever, which used to seize her once every seven years. Burdock  
 small beer was her common table drink. *Sanguinem purificare creditur.* “Ra-  
 “dix ʒj. pondere pota, cum pineis nucleis, cruenta expuentibus, purulenta-  
 “que, excreantibus auxiliatur. Trita quoque articulorum dolores ex contor-  
 “sionibus contractos illitu sedat. Folia denique antiquis ulceribus, utiliter  
 “imponuntur.” *Dioscorid.* l. 4. c. 107. p. 285. Vide Analysis Radicum, &  
 Foliorum & Seminum, *Geoff.* iii p. 156. Foliorum recentium lbv. yielded olei  
 spissi ʒj. ʒv; salis vol. concreti ʒj; & salis fixi alcali ʒvij. gr. xl. Seminum  
 lbv. yielded ol. fluidi lbj. ʒvʒ, & salis fixi falsi ʒij. gr. xiv.

Several of the cardui, carlinæ & cinaræ are of the same nature; and petasites & tussilago are not much different.

### S E C T. III.

The root may be given in decoction or infusion to ounces: the seed in emulsion, or bruised and infused in wine or ale to ij or iv drachms.

“R Rad. bardanæ ʒij. Detur ex aqua stillat. propria, vel proprio decocto,  
 “contra pleuritidem. Semen datur in emulsione facta ex decocto proprio  
 “radicis.

“R Sem. bardanæ ʒij, sem. viol. ʒj, sem. dauci ʒʒ. F. emulsio ex aq. gra-  
 “minis, præstantissima ad calculum & sabulum pellendum.” *Herm. M. S.*

## B I S T O R T A.

### S E C T. I.

*Bistorta offic.* Bistorta major, radice minus intorta, *B. P.* 192. *T.* 511: *H. Ox.* 2. 585. B. major, rugosioribus foliis, *J. B.* 3. 538. Bistorta, *Dod.* 333. B. major, *Ger.* 399. *R. H.* 186. *Syn.* 147. B. major vulgaris, *Park.* 391. Bistorta foliis ovato oblongis, acuminatis, *H. Cliff.* 150. The Greater Bistort, or Snake-weed.

It grows in moist meadows in several parts of Britain, flowering in June. In hotter countries it is found chiefly on the tops of mountains. The root is about the thickness of one's finger, crooked and twisted, dark-brown without, reddish within, of a very astringent taste and no remarkable smell.

Bistorta,

Bistorta, *quasi* bis torta, twice twisted or wreathen, is a modern name. "Radix est serpentis modo intorta." *Hoffman*. 130. Whence it was called also Serpentaria, Colubrina, and Dracunculus. Some think it the Oxylapathum, others Britannica, others Limonium, &c. of the ancients. Vide *B. P.* and *Hoffman*.

## S E C T. II.

It is a strong astringent, and consequently antiseptic; called sudorific and alexipharmic; commended internally in fluxes (diarrhœa, dysentery, gonorrhœa, incontinentia urinæ, fluor albus) and hæmorrhages (spitting or vomiting blood, bloody urine, fluxu mênſium & lochiorum nimio, bleeding at the nose), against abortion, &c.; and externally for loose teeth, spongy gums, sore mouths, humid ulcers, &c.

"Refrigerat, siccatur ad gr. 3. Astringit valide, est austriuscula, alexipharmaca, sudorifera. *Uſus præcip.* in vomitu compescendo, in abortu præcavendo, &c. Externe in catarrhis exiccandis, fluxu uteri, sanguineque vulnerum sistendo. *Præp.* Aqua ex herba." *Schroder*. 548.

1. It is not only astringent, or rather austere to the taste, but also turns a solution of green vitriol to ink, coagulates milk and the serum of the blood, (vide *D. Freind*, *Emen.* c. 14.) and contracts and hardens animal fibres, preventing putrefaction; as its effects on the skin, and those of vegetable astringents, in tanning leather, sufficiently evince.—2. It is said to cool, as it corrects putrid and bilious acrimony; for as it increases the force of the solids, it must also increase attrition and consequently heat, and perspiration or urine, according to the regimen: and thus only it dries. Vide *Adstringentia supra*.—

3. It is commended in all diseases where astringents are wanted. "Ad prohibendam putredinem in peste exhibetur, non autem ad sudorem ciendum. Nihil heic potest: interim per accidens aliquod tale præstat. Nullus dubito in sudore etiam sanguineo multum posse." *Hoffman*. p. 130.

"Analyſi chymica ex rad. bistortæ lbv. prodierunt humorum lbij. ℥ix. gr. xxxij; olei ſpiſſi ℥ij. ℥ij. gr. xl. Carbo relictus pendebat ℥xiv. gr. xxiv: unde cinerum ℥ij. 3vj. gr. xlvij, & inde ſalis fixi alcali ℥ij. gr. xl. Jaçtura in diſtillatione fuit ℥vij. ℥ij. gr. xlvij; in calcinatione ℥xj. 3j. gr. xlvij." *Geoff.* iii. 195. According to which the first humoris ℥xxxvj were subacidæ "aliquantisper odoratæ, aromaticæ. He adds, "Virtute balsamica vulneraria & astringente donatur."

## S E C T. III.

It may be given in powder to 3j, in infusion or decoction to 3ij. It was formerly one of the ingredients in our diascordium: but was left out in edit. 1744. though preferable to some retained, e. g. Bol. Armen.

"Abortum prohibet pulveris 3ß. cum pari succini portione, ex ovo forbili diebus aliquot continuis usurpata." *R. H.* 187. It keeps its place in the species & electuarium e scordio. *Pb. Lond.*

B R Y O N I A.



## B R Y O N I A.

## S E C T. I.

Bryonia, Bryonia alba, & vitis alba *offic.* Bryonia aspera, sive alba, baccis rubris, *B. P.* 297. *T.* 102. B. alba, *Dod.* 400. *Ger.* 896. *R. H.* 659. *Syn.* 261. B. alba vulgaris, *Park.* 178. B. aspera incana, sive alba, baccis rubris, *H. Ox.* 2. 4. Vitis alba, sive Bryonia, *J. B.* 2. 143. Bryonia foliis palmatis, utrinque callosè scabris, dioica." *H. Cliff.* 453. White Briony.

It grows wild in England, Holland, France, &c. generally by the sides of hedges; flowering in May and through the summer, and ripening the fruit in October.

The root is very large and branched; of a white colour; acrid, bitter, nauseous taste: and strong fetid smell, whilst recent.

There is a *βρυωνια* in *Libro de Natura Muliebri* attributed to *Hippocrates*. Vide *Ed. Fæf.* p. 575. lin. 31. and *εχετρωσις* frequently in his genuine works, which they translate on *Galen's* authority (being a word we find not elsewhere, save in *Scapula's* Index) *Lib. ext. ord. Segm.* 7. *fol.* 75. E. Bryonia; though none of the names of this plant are mentioned by *Dioscorides*. "Radix vitis sylvestris (*ἀμπέλκς, αγρίας*) calefactoria acrisque est, quamobrem ad psilothri usum idonea, & vitia cutis in facie emendat. Fructu ejus depilant coria: succiditur omni tempore, sed præcipue autumno." *Theoph.* l. 9. c. 22. p. 1178. Vide *Bod.* 1187. "Vitem albam, aliqui Bryoniam, alii ὀφιοστα φυλον, alii χελιδόνιον, alii μηλωθρον, seu ψιλωθρον aut ἀρχέζωστιν, sive ἀγρωστιν, vel κερωστιν vocant. Sarmentis, foliis & tortilibus pampinis sativam vitem imitatur; sed hirsutiora sunt omnia. Vicinis fructibus vero implicat sese, illos suis claviculis amplectens. Fructum autem gerit racemosum fulvum (*πυρρον*) quo quidem coria depilantur." *Dioscorid.* l. 4. c. 184. p. 317. The whole of this agrees with our Bryonia. *Βρυωνια* aliquibus derivatur a *βρυω*, pullulo, germino, quod germinando luxuriat: aliis a *βριαω* extollo.

"Bryonia dicitur quia florem & fructum gerit *βρυωδη* muscorum." *Bod.* in *Theoph.* p. 1187.

## S E C T. II.

It is acrid, bitter, detergent, attenuant, cathartic, diuretic, and deobstruent; called cephalic, uterine, antispasmodic, and anthelmintic; and commended internally (both as a cathartic and as an alterative) in the palsy, epilepsy, madness, asthma, dropsy, obstructis mensibus, green sickness, spleen, vapours, &c. and externally as discutient and detergent, for tumors, bruises, sprains, ulcers, fixed pains, &c. It was *Dr. Sydenham's* pharmacum domesticum.

"Purgat valde serofos & pituitosos humores, splenitica, uterina, jecorina est, utpote quorum obstructions aperit. Calf. & sicc. 2. hydropicorum aquas per vomitum & secessum educit, menses ciet, foetum ejicit, suffocationes uteri arcet, asthmata sanat, podagricis convenit. (Intus & extus) Dosis in substantia a ʒß. ad ʒj; in infuso a ʒj. ad ʒijß, vel ultra. Extrin-

"secus

“ ſecus confert hydropi abdomini emplaſtrata, cum ſtercore caprillo; quin & quartanam curare dicitur, arteriis temporum & brachiorum affixa. *Præp.*  
 “ 1. Fœcula bryoniæ. Uterina eſt, menſes ciens, ſed non citra nauſeam.  
 “ Doſis a ʒj. 2. Nectar ſuccoſum *S. Cloſſ.* Fit ex ſucci bryoniæ expreſſi ʒj.  
 “ & ol. vitrioli vel ſulphuris ʒj. Doſis ʒj. in vino albo. Purgat aliquando  
 “ per vomitum, alvum & urinam. 3. Unguentum *Agrippæ.*” *Schroder.*  
 p. 757.

1. This root when recent is very acrid, bitter, nauſeous and fetid, ſmelling worſe than any of the gums; and inflames and ulcerates the ſkin. “ Saporis acris, mordacis, amaricantis, & valde ingrati ac nauſeoſi; odoris dum recens viroſi.” *Herman. M. S.* “ Saporis acris, amari, viroſi, nauſeabundi; odoris cum recens eſt ingrati. Folia caules & fructus cutim exulcerant: iis etiam coriarii utuntur.” *Albin. M. S.* “ The leaves are inſipid and viſcous, and do not redden the blue paper: the root reddens it much, it is bitter and ſmells very ill; analyſed it gives much fetid oil, much of an acid liquor, and a conſiderable quantity of volatile ſalt.” *T. Hiſt.* p. 149. No doubt but it alſo has in it much fixed ſalt. Does it redden the blue paper?—  
 2. It loſes much of its acrimony in drying, as alſo its fœtor, but not its bitterneſs, hence it is ſaid that the recent root or its juice is a ſtrong emetic, but when well dried only purgative. — 3. Externally applied it diſſolves, diſcuſſes, cleanses; and hence is uſeful in many caſes, as in contuſions, hard tumors, ſprains, beginning anchyloſes, and ſcrophulæ. “ Bryonia alba raſa ſuperpoſita contuſioni, in qua cruor ſubter pellem nigricat, paucis horis cruorem illum reſolvit in aquam, quam pariter per cutim exigit. Quocirca vim hydragogi in bryonia proficuam attende, ſi virus ſolutivum ab eadem abſtuleris.” *Helmont. Ignotus Hydrops.* §. 40. p. 494. I would ſay vim inflammantem, which is done by decocting it, or mixing it with other ſubſtances: and thus I have experienced ſurpriſing effects from it in ſprains, and ſwellings with ſtiffneſs of the joints; as Mr. Boyle confirms its virtues in contuſions, in his *Experimenta de corporum poroſitate.* R. H. Vide Boyle’s works, vol. iv. p. 209; where ſeveral authors are cited for its effects in the ſciatica, pains of the ſides, ſcrophulæ, dropſy, even outwardly applied. “ Succus ano intruſus hæmorrhoides aperit.” *Herm. M. S.* And what can be more effectual for this than a ſuppoſitory radicis recentis, &c. It is one of the principal ingredients of the long and deſervedly famous *Ung. Agrippæ*, or rather its baſis; wherein are alſo rad. cucum. aſin, ſcillæ, ebuli, &c. Vide *Ph. Aug. Zwelf.* p. 338. — Internally it vomits, purges, provokes urine and the menſes, removes obſtructions, &c. both powerfully attenuating and ſtimulating. Hence it is much commended in hyſteric fits, vertigoes, epilepsy, melancholy, madneſs, dropſy, palsy, green-ſickneſs, aſthma, worms, &c.

“ Ex ea aſparagi, qui prima germinatione exeunt, decocti in cibo, alvum & urinam cient: folia & fructus, & radix vim acrem fortiuntur proindeque chironiis gangrena comitatis, phagedenicis, ac tibiæ putridis ulceribus, efficaciter cum ſale illinuntur. Radix corporis cutem abſtergit. . . Tollit & ſugillata, & digitorum pterygia coeracet illita, ex vino inflammationes diſcutit, & abſceſſus rumpit. . . Bibitur ad epilepſiam ʒj. pondere quotidie anno toto. Prodeſt etiamnum attonitis & vertiginofis, ſimiliter aſſumpta. Dachmis vero duabus pota contra viperarum morſus auxiliatur, & partus Vol. I. F f f enecat:



“ enecat : mentem vero interdum turbat aliquantulum, (ut & urinam) epota.  
 “ Sed & eclegma ex ea fit cum melle strangulatu oppressis, ægre spirantibus  
 “ atque tussientibus, laterum doloribus, ruptis atque vulsis, quin etiam sple-  
 “ nem ternis obolis pota ex aceto 30 diebus consumit, &c.” *Dioscorid.* l. 4.  
 c. 184. p. 317.

“ Novi mulierem quotidie fere per annos vulvæ strangulationibus vexatam,  
 “ quæ tandem in quodam vulgari herbario edocta, ut vinum biberet, in quo  
 “ vitis albæ radicis ℥j. effervuisset, dormitum itura, semel in hebdomade ; cum  
 “ hac medicina per annum usa fuisset optima convaluit.” *Matth.* 883. “ Quen-  
 “ dam epilepsia curatum esse 3 septimanis, solummodo purgando se succo  
 “ bryoniæ depurato, addito paucis saccharo legitur apud Arnoldum de Villa  
 “ Nova.” *J. B.* How Dolæus cured many hydropics with the juice, vide  
*R. H.* and what use Sydenham made of the root, in mania communi, vide  
*Process Integ.* p. 62-5. As for lizards, frogs and toads, vomited up in taking  
 the juices bryoniæ and ireos, though asserted for fact by several authors ; you  
 may consult *Etmuller*, vol. i. p. 738, and those he quotes. I look on them  
 as mountebank tricks only. In a word, briony is one of the most efficacious  
 and useful simples the vegetable kingdom produces, at least in Britain. Yet,  
*proh dolor !* it is excluded the *London M. M.* because it is too common.

“ Analyfi chymica Rad. bryoniæ recentis ℔v. præbuerunt humorum ℔iv.  
 “ 3vj. gr. xv. (of which the first 345 were limpidæ insipidæ, obscure falsæ) ;  
 “ salis volatilis urinosi concreti 3ij ; olei fluidi 3ij. gr. xxxiv. Carbonis  
 “ fuerunt 3vj. 3vij. gr. lxij ; unde cinerum 3j. 3vij, & inde sal. fixi alcali 3j.  
 “ 3ij. Jactura in distillatione fuit 3iv. 3vj. gr. xxxij ; in calcinatione 3v.  
 “ gr. lxiii.” *Geoff.* iii. 221. That there should be terræ only 3v ; so much  
 oil, volatile salt and fixed salt ; and so little acid and earth is singular.

“ Radicis ficcatae 3j. substantiæ gummosæ 3ß. vel 3v. circiter & resinosa  
 “ 3ß. continet : utraque cathartica, magis tamen resinosa.” *Cartheuser.* vol. i.  
*M. M.* p. 593.

### S E C T. III.

It is given in substance to 3j ; in infusion or decoction to 3ij : maniacis ad  
 iv. vel vj, infusa per noctem in vino. *Sydenh.* Half an ounce of the juice may  
 be taken.

“ Dosis ad epilepsiam, &c. apud Dioscoridem & Plinium est 3j. . . Purga-  
 “ tionis gratia Mesue exhibet succ. radicis ad 3ij ; radicis autem in substantia  
 “ ad aureos ij.” *Hoff.* p. 13. “ Rad. dosis ad 3j.” *Bates.* “ Exhibetur radix  
 “ pulverata a 3j. ad 5j. Succus ad 3ß. Radix cocta ad 3vj. Syrupus ex succo  
 “ ad 3j. Fœcula exigua admodum est virtutis. Extractum cum vino ma-  
 “ joris est energiæ : datur a 3ß. ad 3j.” *Geoff.* iii. 222. It is an ingredient  
 in the cataplasma discutiens ; and gives name to a compound water. *What*  
*parts of it rise in distillation ?*

## C A R L I N A.

## S E C T. I.

Carlina, Carolina, Chamæleon albus, Radix Apri & Cardopatium *offic.* Carlina acaulos, magno flore, *B. P.* 380. *T.* 500. *C. altera*, *Dod.* 727. *C. acaulos*, *J. B.* 3. 64. *C. sive Chamæleon albus Dioscoridis*, *Ger.* 1157. *C. humilis* (acaulis) *Park.* 968. *R. II.* 288. Chamæleon albus Dioscoridis; Ixia Theophrasti, *Clus. H.* 2. 155. Carduus Xeranthemus, flore albo ampliore, acaulis, *H. Ox.* 2. 162. Carlina, caule unifloro, *H. Cliff.* 385. The Low Carline Thistle.

It grows in Germany, France, Italy, &c. flowering in July. The root is long and pretty large (often split and flat), brown and wrinkled on the outside, whitish within, of a soft aromatic taste, and fragrant spicy smell. Is it bitterish?

“Carlina vocatur, quod credat vulgus olim Carolo magno, ad fugandam exercitus pestem, ab Angelo monstratam fuisse, tanquam antidotum præstantissimum. Quo argumento freti vulgares quamplurimi, ad arcendam pestilentiam, hujus radices, miris magnisque laudibus commendant, si quotidie 3j. devoretur.” *Matth.* 491. Others however derive it from Carduus as if it were Carduina, Cardina, Carlina. Vide *Hoff.* p. 146. It is not, probably, the Chamæleon albus Dioscoridis. Mr. Geoffroy employs three or four pages on this question, to little purpose, vol. ii. p. 45. Vide *B. P.* 379, citatos. “Eneat canes, fues, mures.” *Matth.*

## S E C T. II.

It agrees in virtues with burdock; is called fudorific and alexipharmic; and commended in malignant diseases, vapours, worms. It may be given from ʒj. to ʒj̄j; but is never used here.

“Calfacit & siccit 3. est alexipharmaca, fudorifera, diuretica, emmenagoga, tineas (tæneas) ventris necat.” *Schroder.* p. 556. “Est alexipharmaca, emmenagoga & communiter utuntur in morbis contagiosis.” *N. Belg.* 63.

1. It is not acrid though pretty odoriferous; but so agreeable that not only wild boars eat it, but even the peasants in Auvergne partly live on these roots, and the sort of artichokes which they produce. Vide *Lemery Dict.* i. 18. *Savary Dict.* i. 552. “Hujus capitula carnosâ calyce floribus ac semine resectis, ex aqua cocta, cum butyro, sale, & pipere cinararum more, suave edulium prebent. Gesner.” *R. H.* So that it is a mild root. Yet — 2. It is commended in many diseases. “Dum Phil. Melanchton hypochondriacis doloribus conflictaretur, eos usu herbæ chamæleontis mitigavit; & hujus remedii efficaciam eum prædicasse testatur Camerarius.” *J. B.* “Habet vero foris etiam abstergendi vim insignem in ulceribus malignis & dyssepuloticis” *Hoff.* 146. As malignant and pestilential fevers, poisons, venomous bites, &c. where if it do no good, it can do little harm; but what is said of its magical or magnetical power I reckon wretched nonsense. “Radix carlina plena succo & viribus evulsa, mumie humanæ contemperata, tanquam fermento ex ho-



"mine, cujus umbram premis, vires & robur naturale in te trahit. Sed hoc  
 "præstigiosum dices, quia paradoxum." *Helmont, de magnetica vuln. curand.*  
 §. 24. p. 707. N. B. §. 23. Though *Etmuller* says, "Multa certe cum hoc  
 "chamæleonte tentantur magica, litem tamen inter tantos viros, hac de re,  
 "decidere non ausus." vol. i. 534.

"Fred. Hoffinanus carlinæ decoctum, in brodio carnis factum, quibus-  
 "dam vomitum movere observavit." *Geoff.* ii. p. 29. "Radix saporis aro-  
 "matici, nonnihil gravis." *J. B.* "Saporis grati aromatici, odoris fragran-  
 "tis specifici." *N. Belg.* 63. "Saporis acris, aromatici, non ingrati; odoris  
 "fragrantis." *Geoff.* ii. 25. "Of an aromatic taste." *Miller Bot.* 117. "It  
 "has a strong smell, and an acrid, bitter aromatic taste." *N. Dispens.* p. 108.  
 "Odore fragrante ingrato, sapore subacri ac debili balsamico." *Cartheuf.*  
*M. M.* ii. 75.

## CARYOPHYLLATA.

### S E C T. I.

Caryophyllata, Sanamunda, Herba Benedicta, *offic.* Caryophyllata vulga-  
 ris, *B. P.* 321. *T.* 294. *H. Ox.* 2. 430. *Park.* 135. Caryophyllata, *Dod.* 137.  
*Ger.* 994. *R. H.* 606. *Syn.* 253. Caryophyllata vulgaris, flore parvo, luteo,  
*J. B.* 2. 398. Geum floribus erectis; fructu globofo, feminum cauda unci-  
 nata, nuda, *H. Cliff.* 195. Avens, or Herb-Bennet.

It is very common in thickets, by hedges, walls, &c. flowering in June, and  
 through the summer. The name is modern from the smell of the root.  
 "Vulgus ab insigni ejus efficacia Herbam Benedictam & Sanamundam appel-  
 "lat. Sunt qui ad Lagopum Dioscoridis, l. 4. c. 17. referunt: alii rectius ad  
 "Geum Plinii, l. 26. c. 7. Alii ad ejusdem, l. 25. c. 9. Argemoniam, cujus  
 "radix Thus redoleat." *B. P.*

It is a small fibrous root of a reddish brown colour, astringent taste, and  
 clove-smell. "Odorem quendam caryophyllorum, sed neque omnibus locis,  
 "neque omni tempore." *Hoffman.* 149. All that I have observed smell alike.  
 "Sapore terreo-austero adstringente." *Cartheuser. M. M.* 2. p. 433. "It has  
 "a warm bitterish astringent taste." *N. Disp.* 109.

### S E C T. II.

It is astringent; called cephalic and cordial; and commended in catarrhs,  
 contusions, obstructions of the liver, loss of appetite, &c. It may be taken  
 any way; and there is no danger in the quantity. But it is little used any  
 where. I find it not in *Geoffroy*.

"Radix (collecta 23 Martii circiter, quæ odoris fragrantis est) calf. &  
 "sicc. 2; subastringit, roborat, discutit, cephalica ac cardiaca est. *Ufus præ-*  
 "*cipui* interne in catarrhis exiccandis, sanguine coagulato resolvendo." *Schrod.*  
 558. It is evidently styptic to the taste; and also turns a solution of green  
 vitriol black. It is numbered among the antacida in *Boerb. Lib. de M. M.*

"Avens.

Avens is bitter, styptic, and reddens much the blue paper; the root smells "of cloves." *T. Hist.* 254. Vinum in quo infunditur radix, optimo & jucundissimo odore & sapore commendatur; coque cor exhilarari & obstructions jecoris aperiri; nec non frigiditate & crassis humoribus affectum stomachum juvari multi testantur." è *Trag. R. H.* where it is commended for obstructions of the menses, agues, fluxes, hæmorrhages, flatulencies, fluxu mensium nimio, &c. "Quod de ligno sassafras dicitur, quod sit alexipharmacum catarrhorum, teste Brunero, valet etiam de radice caryophyllatæ; corrigi enim lymphæ p. n. acescentiam. Radix enim, juxta Paracelsum, cervicis indita, eam a corruptione & præmatura preservat acescentia." *Et-muller.* vol. i. p. 536.

## CASSUMUNIAR.

## S E C T. I.

Cassumuniar, Casumunar, Risagon, Bengale offic. Risagon, *Grew's Rar.* 386. "Cassumuniar offic. C. aliis Risagon, *Peach Obs.* Casmunar, *Marl.* "Zedoaria radice lutea, *Breyn. Prod.* 2. 105." *Dale* 251. Cassumuniar & Casmunar Anglorum, Bengalle Indorum, *Art. R. Soc.* No. 264. *Geoff.* ii. 29. Bengalle, *Pb. Transf.* No. 264. p. 580. an. 1700. Casumunar, or Casmunar.

It is a pretty thick, tuberous root, brown without with superficial circles, and yellowish within; sliced or cut into short pieces, of a somewhat hot bitterish and disagreeably aromatic taste, and strong heavy smell.

"Risagon, a root brought from Bengala, of good use, cut into flat pieces, of a whitish colour, bitterish and aromatic taste, and hath very large fibres." *Grew. Mus.* p. 386. "Radix tuberosa ad pollicem aut amplius crassa, in taleolas transversas secta, superficie circulis (ut in galanga) quasi geniculis notata, fusca, intus flavescens; saporis amaricantis aromatici, odoris fragrantis." *Dale*, 252. "It is about the thickness of the little finger, cut into short pieces, its outside encompassed with circles, like galangal, of a brownish yellow colour, and of a somewhat bitter hot aromatic taste." *Miller, Bot.* p. 122.

"Some years ago, I think ever since 1672, a root was made great use of, with some success, in epileptic, convulsive, or head diseases: it was called by Dr. Peachy, a physician since dead, Cassumuniar, and a sheet of paper was then printed of its virtues. It seemed to be a kind of zedoary better than ordinary; but whence it came, and how to come by it (the name being feigned to hide it, and the person dead) none could tell. When I saw this collection (of Mr. Samuel Brown) at the East India-House, I found amongst other things, this root by the name of Bengalle, and an account, that it was much used by the natives in the Indies. I told some drugsters of this discovery; they sent for it, and have received it from the Indies, by that name." Thus Sir *Hans Sloane, Philos. Transf.* No. 264. p. 580. "Nomen Risagone & Cassamuniar fictitia sunt, ad plantam celandam exogitata: verum nomen quo in India inotescit est Bengale." *R. H.* 3. p. 649.

Although



Although this root was recommended at first with large encomiums on its virtues, as most new medicines are; yet its fame seems neither to have gone far, nor increased much in Britain. For Mr. Geoffroy is the first foreign author that I know, who has numbered it among simples: and Dr. James Crawford, P. M. late in this university told me, that he heard Dr. Pitcairn damn casmunar and verrucæ equinæ as medicines; for though he long and often prescribed them, they never had answered his expectation.

## S E C T. II.

It is a stimulating aromatic, so probably antispasmodic, diaphoretic and carminative; called cephalic and nervine; and commended in the vertigo, apoplexy, epilepsy, palsy, flatulent colics, vapours, &c.

“Moderatè calfacit & astringit; partium est tenuium; nervos roborat, spiritus animales & vitales reficit, ventriculum confortat, flatus expellet. In apoplexia, motibus convulsivis, paralyfi, tremore, hysterica passione, hypochondriacis affectibus, vertigine, & internorum torminibus curandis, medicamentum est præstantissimum. *D. Peachy, M. D.* pro corticis Peruviani correctorio eam commendat. In lapsu memoriæ multum laudatur a *D. Joanne Allen, M. D.* in Synopsis sua Medicinæ, Art. 420. Qui de viribus ejus plura scire desiderant, *D. Peachy & D. Marlow* observationes consulant.” *Dale*, p. 252.

1. It is bitterish and aromatic, and though somewhat nauseous at first, yet it leaves a not unpleasant flavour behind it in the mouth. “Ex odore fragranti & saporis acri, pungenti aromatico, conjicere licet, huic radici inesse salem volatilem, oleosum, aromaticum, a quo potissimum ejus energia pendet. Nervos firmat, &c.” *Geoff.* ii. 30. who transcribes both description and virtues from *Dale* without naming him. — 2. It has both its advocates and its enemies. “It is brought much into esteem by the recommendation and practice of Dr. Mead, who uses it as a stomachic, as well as an hysteric.” *Quincy, Pharm.* p. 84.

“Zedoariæ speciem Gerdwar dictam esse conjectatur *D. Dale*: cujus vires & usus in apoplexia, paralyfi, vertigine, motibus convulsivis, affectibus hystericis, torminibus intestinorum, præ aliis hæcenus cognitis medicamentis, commendat & celebrat *Jo. Peachy, M. D.* iteratis experimentis a se factis, comprobatis.” *R. H.* 3. *N. B.* Peachy made an arcanum of it. It stands among the simples in the *London Pharmacopœia* (but is found in none of their compositions) by the name Casumanar; but has no place in the *Codex Medicament.* edit. 1748.

## S E C T. III.

It may be given to ʒß: but is seldom taken per se. It is used in the tincturæ cephalicæ, and no other composition *Pb. Edensf.*

“Exhibetur in substantia a ʒß. ad ʒß. Tinctura cum spiritu vini, a gut. xx. ad xxx. in potu theæ vel vino. Extractum a gr. vi. ad xv.” *Geoff.* ii. 30. It is obvious that these doses are fixed by no sort of rule.

C H E L I-

## CHELIDONIUM.

## S E C T. I.

Chelidonium, *Chelidonium majus, offic.* *Chelidonium majus vulgare, B. P.* 144. *T.* 231. *H. Ox.* 2. 257. *Park.* 616. *C. majus, Dcd.* 48. *Ger.* 1069. *R. H.* 858. *Chelidonia, J. B.* 3. 2. 482. *Papaver corniculatum luteum, Chelidonia dictum, R. Syn.* 309. *Chelidonium, pedunculis multifloris, H. Cliff.* 201. The greater Celandine: the herb and roots of which are used.

The root is pretty thick at the head, and often split, with many branches and fibres, of a brownish-red colour, but black when dried, of an acrid, bitter, nauseous taste, and stinking smell like that of rotten eggs.

It grows wild in many places in England, flowering in April, and through the summer. It is not badly described by Dioscorides; who observes the form and colour of the leaves and flower; the succus croceus, acris, mordax, subamarus, graveolens; the root, pod, seed, &c. so that this is the *Chelidonium antiquorum*, (vide *Dioscor.* l. 2. c. 211. p. 167,) so called from *χελιδων*, hirundo.

“*Chelidonium adventu hirundinis, suum excitat florem.*” *Theoph. Hist.* l. 7. c. 14. p. 882. “*Animalia quoque invenere herbas, imprimisque Chelidoniam. Hac enim hirundines oculis pullorum in nido restitunt visum, ut quidam volunt, etiam erutis oculis. Genera ejus duo. . . Florent adventu hirundinis, discessu marcescunt. . . Utuntur & per se succo in collyriis quæ Chelidonia appellantur ab ea.*” *Plin.* l. 25. c. 8. *Mr. Tourn. Hist.* p. 15. says, *Aristotle* believed this vulgar error: “*Pullorum hirundinis adhuc recensium oculi, si quis stimulo eos vexarit, refanescunt, & cemendi vim postea plane recipiunt.*” *H. An.* l. 6. c. 5. And *Celsus* calls it a fabula, “*per parientes id herbâ restitui, quod per se sanescit.*” l. 6. c. 6.

## S E C T. II.

It is acrid, bitter, fetid, detergent, attenuant, diuretic, purgative, hepatic and scorbutic: hence it is proper in all phlegmatic obstructions and infarctions of the viscera: and is commended inwardly in the jaundice, green-sickness, cachexy, dropsy, &c. and outwardly for diseases of the skin and eyes, when such applications as increase an inflammation, or heating detergents, will forward a cure. The herb is of the same nature.

“*Calfacit, siccat 3. validè abstergit, attenuat; saporis est acris & amari. Bilem per alvum & urinam educit, visum acuit. Hinc conducit in ictero, obstructione lienis, epatis & ureterum. Radix alexipharmaca statuitur. Extrinsecus oculorum imbecillitati, ulceribus, cæterisque affectibus medetur. (Sunt qui succum luteum induunt). Præp. 1. Succus inspissatus. 2. Aqua ex herba. 3. Sal ex cineres.*” *Schrod.* p. 563.

1. Its proper saffron juice, in which its virtues are lodged, is an acrid, bitter, fetid, and penetrating saponaceous substance, and more stimulating than the bile itself, which it seems in something to resemble. — 2. Chymically analysed



lysed it yields plenty (*affez*) of both volatile and fixed salt, involved in much sulphur and earth. Vide *T. Hist.* p. 15. (from the *Regist. de l'Acad.*) where its proper juice, he says, is as it were phagedenic, and somewhat resembles a decoction of an acrid salt in milk, or a solution of sublimate corrosive in lime-water. Mr. *Geoffroy* gives the analysis at large, according to which, “Chelidonii fol. & stirpium lbv. gave humorum lbiv. 3x. 3ij; salis volatilis 3j; olei spissi 3ivß; carbonis 3ij. 3vij. gr. xvij. unde cinerum 3j. 3iisß. & inde salis fixi alcali 3vj. gr. xxvij. (so that there were terræ 3iv. gr. ix). Jacturæ fuit 3ij. gr. xvij.” *M. M.* iii. 310. where the juice is compared with the lac sulphuris. — 3. Outwardly applied it heats, inflames, ulcerates: hence is of use for superficial ulcers, scurf, warts, spots and other diseases of the skin; and may do service in such sore eyes where brushing and scarifying are proper. “Extractum Chelidonii, non solum in externis nubeculis, verum incipiente suffusione præstantissimum esse, sæpissime expertus sum. Incidit enim & attenuat crassos humores visum obfuscantes. Sed quia utcunque acre est, non ultra magnitudinem capitis aciculæ, pro vice, oculo imponendum est, idque fiat mane in lecto.” Ex *Hildano. R. H.* 858. All the antients make it an ophthalmic: *An a fabula hirundinum?* — 4. Internally it is commended in many diseases, as the jaundice, scrophulæ, tabes Anglica (in which from tubercles, in the beginning of the disease, it may do good). There is a treatise by *Theophilus de Garanciers*, called *Flagellum Angliæ, seu Tabes Anglica numeris omnibus absoluta.* Lond. 1647. in 12mo. (Vide *Lind.*) in which a particular medicine is commended as a specific; which is said to have been the Chelidonium. Vide *R. H.* In hepatic consumptions I see not what good it could do, though we have in *T. Hist.* a compound distilled water from celandine, craw-fish and honey, recommended in this disease. Celandine is commended also for the dropsy, vapours, intermitting fevers (by *Wagnerus*, vide *Bib. Pharm.* i. 554), and by some in the pestilence also. Vide *T. Hist.* p. 16. In a word, it has in all ages been a famous medicine; though it is now thrown out of the *London M. M.*

“Succus melli admixtus, & in æreo vase prunis decoctus oculorum aciem adjuvat. . . Radix cum aniso, ex vino albo pota regio morbo medetur, itemque herpetibus imposita cum vino: sed & commanducata, dentium dolorem sedat.” *Dioscorid.* l. c. Pliny commends it for the strumæ, ulcers, caligines oculorum, &c. variis in locis. The chymists call it Cælidonium, and boast much of its quintaessentia, (vide *Matth.* 468. & *Bod.* in *Theophrast.* p. 893,) and the four elements got from it. Vide *Crato, Epist.* l. 2. ep. 1. “Hanc herbam, si Alberto credimus, si quis cum corde talpæ habuerit, devincet omnes hostes, omnes causas, & omnes lites amovebit. Et si prædicta ponantur super caput infirmi, si debet mori, statim cantabit alta voce; si non, lachrimabit.” Vide *J. B.* 3. 483. who calls such aniles fabulæ: *Et-muller.* vol. i. p. 542. & *Burrhum* & *Schottium*, ibi citatos.

### S E C T. III.

It may be given in substance to 3j; in infusion to 3ij: the proper juice well diluted, or covered, to gut. iv. It is ordered in the Decoction ad Icteros,

*Pharm. Edin.* The herb was an ingredient in the Aqua Epidemica of the *Old London Pharm.* and the juice in its Aqua Mirabilis.

“ Radicis exsiccatæ pulvis ad ʒss. vel ʒj; ejusdem recentis ʒj. infusum in vini lbij. vel decoctum ex aqua ad ʒvj, epotum; succi crocei gut. iij. vel iv. in vini haustu, vel alio vehiculo idoneo, præscribuntur. Em. König monet ne Chelidonium nimia dosi exhibeatur. Si enim radix ad ʒij. infusa proponitur eam horrenda symptomata inducere asserit. Dicunt nonnulli ejus radicem fuisse specificum remedium Helmontii, adversus hydropem ascitem.”  
*Geoff.* iii. 311-12.

## L E C T U R E XXXIX.

### C H I N A.

#### S E C T. I.

1. **C**HINA, Radix China vel Chinæ radix, *offic.* China radix, *B. P.* 296. China radix, *J. B.* 2. 120. *R. H.* 657. China vulgaris officinarum, *Ger.* 1618. Chinæ radix officinarum, *Park.* 1578. Radix Chinæ Garcie, *Clus. Exot.* 208. Acoftæ, *ibid.* 274. Sankira, vulgo Quaquara, Smilax minus spinosa, fructu rubicundo, radice virtuosa, China dicta, *Kemsp. Am. Exot. Fasc.* v. p. 781. *Descr. & Icon.* China Orientalis, seu Smilax aspera Chinesis, Lampatam dicta, *Herman* in *M. S. S. Dale* 167. China-Root. — This is large, tuberous and knotty, of a dark reddish-brown colour (yellowish-brown colour, *Mill. Bot.*) on the outside, reddish-white within, and of very little taste or smell.

It comes from China and the East Indies, “in flattish pieces, long and full of knots, of a firm, smooth even body, when cut, of very little taste.” *Mill. Bot.* 135. It was about the year 1535, that the Portuguese in the island *Diu* came to the knowledge of this root; said to be a sovereign remedy for the lues venerea first brought from America, “hoc morbo ab omni hominum memoria vexata, anno 1493,” as *Garcias* observes. For,

“Columbus set out in his first voyage in August 1492; arrived in Hispaniola October 15, which he again left the 4th of January 1493; and came to Lisbon the 4th of March following. With him in this ship came the pox, which raged at Naples in 1494, and two years after had overspread all Europe.” See *Sloan’s* Introduction to the Hist. of Jamaica, p. 2. It soon reached the East Indies and China. And in 1497 it raged at Edinburgh, and occasioned a pretty remarkable proclamation, banishing all such as were infected, to Inchkeeth, under severe penalties.

“It is our Soverane Lord’s will, and the command of the Lordis of his councole, send to the Provest and Bailies within this burgh, that this proclamation follow and be put till execution, for the eschewing of the greit appearand danger of the Infection of his leiges frae this contagious seikness callit the Grandgors, and the greit uther skayht that may occure to his leiges and inhabitants within this burgh; that is to say, We charge straitly  
VOL. I. G g g “and



“ and commands be the authoritie above written, that all manner of persons being within the freedom of this burgh quilks are infectit, or has been infectit uncurit, with this said contagious plague callit the Grandgors, devoydred and pass furt of this town, and compeir upon the sandis of Leith at 10 hours before noon, and thair fall thai have and find botis reddie in the havin ordainit to thame, be the officiris of this burgh, reddily furneist with victuals thave thame to the Inche, and thair to remain quhill God provyd for thair health. And that all uther persons, the quhilks taks upon thame to hale the said contagious infirmitie, and taks the cure thair of, that thay devoyd and pass with thame, sua that none of their personis, quhilks taks sic cure upon thame, use the samyn cure within this burgh in presence nor peirt any manner of way. And wha sa be is found infectit, and not passand to the Inche as fadis, be Mononday at the sone ganging to, and in lykeways, the saids personis, that takis the said cure of sanitie upon thame, gif thay will use the samyn, they and ilk ane of thame, falls be brynt on the check, with the marking irne, that thay may be kennet in tym to cum, and thair-  
“ efter, gif any of thame remainis, that thay falls be banist but favors.”

Thus the *Minutes of the Council at Edinburgh*, Sept. 22, 1497, being the 10th of King James IV. Vide *Phil. Trans.* No. 469. p. 420. It was the Chinese merchants, that first founded the praises of this root in the Indies, and they found their account in it. In Europe however its reputation did not last long, the Emperor Charles V. being disappointed in his expectations from it. Vide *C. Hoffmān*, p. 167. §. 7. *Garcias*, l. c. writes, “ Persæ Badæ-Frangi vocant (tamenetsi etiam simpliciter Fringui) quod morbum Gallicum sanat.”

2. China Occidentalis, *offic.* China spuria nodosa, *B. P.* 297. *R. H.* 658. Pseudo-china radix ex Virginia, *Clus. Exot.* 83. P. radix Clusii, *J. B.* 2. p. 122. Pseudo-china, *Ger.* 1618. *Park.* 1579. Smilax aspera, fructu nigro, radice nodosa magna lævi farinacea, China dicta, *Cat. Jam.* p. 105. *Sloan. Hist.* p. 231. *Tab.* 145. Jupicanga, *Pison.* 99. China Occidentalis Pharmacop. *Dale* 168. American China.—This has a large knotty, tuberosc root, brown without, reddish within, full of woody fibres, and of no more taste than the former.

“ Radix est oblonga, crassa, nodosa & lævis, foris rufa, intus subrubens. “ A superiore non specificè differre mihi videtur.” *Dale* 168: where see his reasons for it. “ West-India or Jamaica China is a root that comes from Jamaica in long round pieces, full of knots or joints, whitish without, “ and red within, of little or no smell or taste.” *Miller Bot.* 135. *Clusius* says it was sent him from London by James Garret in 1591, being brought from Wingandecaow or Virginia, with this inscription, *Chinæ species*. Is it a native of Virginia?

## S E C T. II.

They are antacid, balsamic, antiscorbutic and vulnerary; and in decoction (as commonly used) diluent, diaphoretic and diuretic: so may be said to purify the blood, and remove obstructions in the viscera. They are commended in the scurvy, gout, cachexy, phthisis, &c. and reckoned a specific in the French-pox and leanness.

“ Cal-

“ Calfacit leniter, ſiccāt 2. ſubſtringit, eſt diaphoretica, diuretica, diſcutiens, aperiens, epatica. Hinc convenit in cachexia, hydrope, paralyſi, cephalæa, ictero, lue venerea, tumoribus ſcirrhoſis & œdematofis. *Præp.* “ Extractum cum ſp. vini, quod tamen rari uſus. Adhibetur crebrius in decoctis; ſufficitque ʒj. vel ʒij. pro aquæ lbix.” *Subroder.* p. 564.

1. Though the taſte of it in ſubſtance is not very obſervable, being only ſoft, agreeably earthy as it were, and a little drying in the mouth (its virtues not being eaſily extracted from it); yet when long decocted it communicates to the water a ſort of aromatic, or baſſamic, gently nourishing quality, and tinctures it ſtrongly. “ Eſt ſaporis & odoris nullius evidentis. Dum recens “ unctuoſa & acris.” *Dale.* “ Aliquando eſt nonnihil reſinoſa, ſapore, dum “ recens eſt, aliquantulum acri & ſubpingui; ſicca vero, terreſtri leviterque “ aſtringente, odore nullo prædita.” *Geoff.* ii. p. 31. “ Saporis terreſtri inertis, “ odoris nullius. . . . Radicis ʒj. circiter extracti ſpir. i. ʒv, extracti aq. i. ʒv. “ reddidit. . . Nullius ferme uſus eſt.” *Cartouſer* ii. p. 448, &c. — 2. It contains a mild roſin friendly to nature, and antifeptic; with a farina of ſuch ſalts, as are ſufficient, by decoction in water to diſſolve it; yet its principles are ſo united to its terreſtrial parts, as to require long boiling to ſeparate them. “ Uncia una Chinæ non ſemel tantum tingit aquæ lbxv. ſed ſexies.” *Hoffman.* p. 168. §. 8. — 3. It does not turn a ſolution of green vitriol black; ſo that it cannot be called aſtringent. — 4. Recent and tender it is eaten in China, boiled with fleſh-meat: the decoction alſo is reckoned reſtorative and ſtrengthening. Vide *Garcias, Veſalius*, &c. “ Juxta Claudinum priapiſmum excitat.” *Etmuller.* i. 544. “ Fallopius ex decocti uſu homines valde pingueſcere ait. Cujus rei “ oculatus teſtis ſit Alpinus. *Med. Ægypt.* l. 3. c. 16. (fol. 108. 6.) & iterum “ l. 4. c. 1. ubi teſtatur vidiffe ſe plurimos emaciatos decocti hujus uſu corpus recepiffe. Quin Turcas, qui delectantur uxoribus bene habitis, eodem “ decocto craſſefacere delicias ſuas.” *R. H.* 658. from *Hoffman.* p. 169. unnamed. Vide *Alp. Med. Ægypt.* l. 4. c. 1. p. 117. b.

“ Intelligo illos qui hoc decocto utuntur, mulierum conſpectu, vehementer “ ad libidinem accendi.” *Garcias.* l. c. Hence it appears to be nourishing. “ Sæpius notavi Sarſam & Chinam ſtomachi vigorem obtudiſſe, nunquam “ autem, in praxi mea, obſervare adhuc potui multum emolumenti cuiquam “ ex earum uſu accepiſſe. Forſan ipſe infidelis & impatiens, non ſatis perfe- “ veranter uſurpavi.” Vide *Decoct. Sarſæ* in *Fuller's Pharmacop. extemp.* It blunts the appetite, of ſtomach, as meat and drink do, and ſurely is of more uſe than his aqua limacum; as well as lighter on the ſtomach than his juſculum conſummatum. However, — 5. China is commended perhaps extravagantly in the lues Gallica, &c. as above: alſo in the palsy, trembling and pains in the joints, ſciatica, ſcirrhouſ, ſcrophulous and œdematous ſwellings, weakneſs of the ſtomach, head-ach, ulcers in the bladder, ſtone, dropſy, and almoſt every chronical diſtemper. And there are ſeveral treatiſes on China in the *Aphrodiſiacus*, as by *Veſalius*, *Braſavolus*, *Amatus Luſitanus*, *Cardanus*, *Claudinus*, &c. Yet poor China is now expelled the *London M. M.*!

“ I have known ſome phyſicians prefer the occidental to the oriental China, “ eſpecially in ſcrophulous caſes, and in conſumptions, where there were any ſuſpicions of their ariſing from a ſcrophulous cauſe.” *Mill. Bot.* 135.



"China occidentalis viribus cum orientali convenit, licet paulo inferior censeatur. Ex Hispania Nova, Peruviano regno, Brasilia, aliisque Americæ regionibus affertur." *Geoff.* ii. 36.

"China optima est recens, densa, solida, ponderosa . . . fere insipida, plena tamen humore quodam pingui & unctuofo, qui masticando quidem satis ardens fit, in decocto autem evidentior." *Geoff.* ii. 31. "Nisi decoctum postquam ab igne remota est, bene tegatur pannis, & calido loco fervetur, eodem die acescit." *Hoffman*, p. 169. "Quid autem possit in ulceribus pulmonum, renum, vesicæ, uteri nescio. Præter enim humorum contemperationem & partium delinitionem, nihil a China expecto. Hinc erudiri possunt illi, qui vel pro cœlesti auxilio habent, vel prorsus contemnunt." *Ibid.* p. 170.

## S E C T. III.

They are used in decoction. Rad. ʒj. is enough for ℥bj. of strained decoction, after it has been boiled down to an half, or a third of the water first taken. The oriental has been taken in powder, in its own decoction, to ʒij. twice a day.

Garcias decocted radicis ʒj. in aquæ ℥ix. circiter, to the consumption of one half. "China raro una sola usurpatur, sed cum sarfa, guajaco, &c. in substantia exhibetur a ʒß. ad ʒiß. In decocto vero a ʒj. ad ʒß. conjungitur ad ptisanas, vel decocta sudorifera præparanda." *Geoff.* ii. 35.

## C I C H O R I U M.

## S E C T. I.

1. Cichorium, Cichorea, Seris, *offic.* Cichorium sylvestre, sive officinarum, *B. P.* 125. *T.* 479. *H. Ox.* 3. 55. Cichorium sativum, *B. P.* 125. C. sylvestre & sativum, *J. B.* 2. 1007. *R. H.* 255. C. sylvestre, *Ger.* 284. C. sativum ejusdem, 282. C. sylvestre, *Park.* 775. *R. Syn.* 172. Cichorium caule simplici, *H. Cliff.* 389. Garden, or Wild Succory. — This has a thick, long, taper, root, of a brown colour without when dried, white within, of a bitter taste and no smell.

It grows in several places of Britain, Holland, &c. When cultivated in gardens it is the C. sativum. It flowers in June and July. The flowers open at sun rising, shutting again and decaying at night: also they follow the sun; and hence the herb is called by Brunfels *Solsequium*. The leaves, flowers and seeds are also used as well as the roots. The seed is small, oblong, cornered and brown, and insipid to the taste.

"Intybum erraticum apud nos quidam Ambugiam appellavere. In Ægypto Cichorium vocant, quod sylvestre sit: sativum autem Serin, quod est minus & venosius." *Plin.* l. 20. c. 8.

"Κίχωρ est apud Nicandrum. Hinc a κίχωρ est diminutivum κίχωριον. Σερīs Græca vox est, licet alii a Serus, a, um, deducunt." Expressa Columellæ verba sunt, "Seris genus intubi quam Græci σερῖν vocant." Hæc  
"duplex

“ duplex est hortensis & sylvestris. Illa Latinis Intybus seu Intybum est teste Galeno; hæc *κίχωριον* ἢ *πίκρίς*. A Seride est vox barbara Italica, Scariola, quasi Seriola. Pariter ab Intybus est vox Italica, Intubria, seu Entivia, & quod usitatus Endivia.” *Hoffman*, p. 172.

———— “ Me pascunt olivæ,  
“ Me Cichorea, leveſque malvæ.” *Hærat.* l. 1. Od. 31. v. 15.

“ Cichorea, & teneris frondens lactucula fibris.” *Juvenal.*

Celsus calls the garden succory Intybum, and the wild Ambubeiam, *J. B. Semina* 4 frigida minora, are *Scariola*, *Endivia*, *Lactucaque*, *Portulaca*, as *Marg.* verifies them.

2. Endivia, *offic.* Intybus sativa latifolia, sive Endivia vulgaris, *B. P.* 125. *H. Ox.* 3. 57. Cichorium latifolium, sive Endivia vulgaris, *T.* 479. Intybum sativum latifolium, *J. B.* 2. 1011. Intybus sativa, *Ger.* 282. *R. H.* 254. Intybum, *Park. Par.* 495. Endivia sativa, *P. Theat.* 774. Cichorium, caule simplici; foliis integris crenatis, *H. Cliff.* 389. Endivia, Scariola, Intybus *offic.* *Dale*, 84. Endive.

Linnaeus suspects this to be only a variety of the former, not knowing where it grows naturally. “ *Officin. N.* says *Schroder*, folia, semen, rarissime “ radix.” The leaves are used in sallets only: the seed, when the cold lesser seeds are ordered, which is indeed very seldom. They differ little from succory seeds.

This Cichorium is not described by *Dioscorides*, though he names three species of it. “ Seris duplex; ex his sylvestris ea est quæ & Picris & Cichorium “ appellatur: altera (quæ hortensis est) & latioris est folii, & ori gratior. “ Et hæc genere duplex; una est lactucæ similior, & latifolia; altera est an- “ gustiore folio & amarulenta.” l. 2. c. 160. p. 143. But *Theophrastus* gives better marks of it. *Hist.* l. 7. c. 11. p. 853. Vide *Bod.* in *Theophrast.* p. 855.

## S E C T. II.

They are bitter, resolvent, diluent, diuretic; called hepatic, splenic, nephritic, scorbutic, and vulnerary: and are commended in obstructions of the viscera, though inflammatory; in the jaundice, cachexy, spleen, vapours, &c. Also in the scurvy, as sweetners of the blood. All parts of the plants are lactescent, and of the same nature.

“ Cichorium, Cichorea, Seris, Solsequium, Intybus, Ambubeia, sativum “ & sylvestre, *officin.* Flores, folia (sylvestris potissimum). Radix, (sativæ). “ *Vires.* Epaticum est nobilissimum, frig. & sicc. 2. (aliis calidum videtur ob “ amarorem) aperit, diureticum est, attenuat, extergit. *Uſus præcipue* in epa- “ tis obstructione & febribus. N. collectum in sua exaltatione (die festo Na- “ tivitatis Mariæ) hæmorrhagias sistere creditur. *Præp.* 1. Conserva ex flo- “ ribus. 2. Condita radix cum saccharo. 3. Syrupus simplex ex succo. “ 4. Compositus. 5. De cichorio cum rhab. 6. Aqua ex foliis & floribus. “ 7. Aqua ophthalmica. 8. Sal. com. ex planta incinerata.” *Schroder*, p. 566.



“ Endivia epatica est nobilissima, refrigerat & siccat 2. abstergit, aperit, diuretica est. *Ufus* frequentissimi in febribus biliosis. *Præp.* Aqua, succus, syrupus quadruplex & sal. com.” *Id.* p. 585.

1. It is not acrid nor astringent, nor nauseously bitter; but contains a milky saponaceous juice, which is the most medicinal part, and which being separated by infusion or decoction, the remainder is an olus molle. — 2. Mr. T. says the root reddens a little the blue paper, but the flowers redden it more. Do not acids redden cichory flowers? “By a chymical analysis succory yields much oil and earth; some acid liquors, a little urinous spirit, and volatile salt.” From *Regist. de l’Acad. T. Hist.* 327. Mr. Geoffroy (*M. M.* iii. 425, &c.) gives the analysis, 1. Foliorum. 2. Radicum cichorei, 3. p. 320. 3. Intybi totius. 4. Ejus albi foliorum recentium, and 5. ejus viridis junioris foliorum recentium, p. 423. According to which “Cichorii foliorum tenerorum recentium lbv. præbuerunt humorum lbiv. 3vj. 3vij. gr. xxxvj; salis volatilis 3j. gr. xl; olei 3j. 3iv. gr. vj; carbonis 3iv, unde cinerum nigricantium 3j. 3vij. gr. xlvij. & inde salis fixi alcali 3vj. gr. lx. (ergo terræ 3j. gr. lx.) Et jactura fuit 3ij. 3ij. gr. lxii.” The distillation was first B. V. then per retortam. Again, “Intybi viridis junioris foliorum recentium lbv. præbuerunt humorum lbiv. 3vij. gr. x; salis volatilis 3j. gr. xxiv; olei 3v. gr. xii. Carbonis fuerunt 3j. 3ij; unde cinerum 3j. 3ij. gr. lx, & inde, salis fixi alcali 3iv. gr. xlviii. (ergo terræ 3vij. gr. xij.). Jactura fuit 3v. 3vij. gr. xxvi.” The distillation here was per retortam only. Hence they differ considerably in the quantity olei, carbonis & jacturæ. But what is most remarkable, is that all the liquors which the succory yielded were more or less acid; whereas no acid was discovered in those from the endive, which were all “saporis quasi lixiviosi, vel urinosi.” “Nullum acidi signum præbuerunt in tentaminibus, ob maximam salis urinosi copiam.” Yet their virtues are the same.—3. They are commended in a variety of diseases, as obstructions of the lacteals, stuffings of the lungs, gout, dropsy, bilious as well as intermitting fevers, hypochondriac melancholy, and all atrabilious distempers, &c. But then they must be used, rather as food than medicine, taken by pounds, rather than drachms, and that for a long time. “Joan. Rhodius testatur quod professor quidam Patavinus diu plurimis medicamentis, quolibet anno sine effecacia, tantum non confectus, mutato demum consilio, jusculis cichoraceis in prima mense haustis, melancholiam, hypochondriacam profligavit. Usus radicis cichorei in febre hæctica insigniter laudat Crato ab experientia. Notat Spigelius podagricis cich. sylv. herbam valde conferre.” *R. H.* 255.

“Novi qui toto usu foliorum cichorei sylvestris, assidue in acetariis co-mestorum, diurnas & contumaces febres intermittentes profligarunt, plurimis febrifugis antea frustra tentatis.” *Geoff.* iii. 322. “Externe endiviæ virentis folia in inflammationibus & tumoribus erysipelaceis admoventur contusa. Usurpantur & in enematibus refrigerantibus emollientibus.” *Id.* iii. p. 426.

### S E C T. III.

They are used any way ad libitum. We keep no preparation of them. The syr. de cichorio cum rhabarbaro itself, being put out of our *Dispensatory*; as the plants themselves are excluded the *London M. M.*

“ Ex

“ Ex cichorio sylv. præparantur in officinis aqua & Extractum. Aqua ex  
 “ floribus cæruleis distillata inflammationibus & caligini oculorum medetur;  
 “ cardiaca etiam censetur. Extractum ad omnia usurpatur, quibus cichorium  
 “ convenit. Solum vel cum aliis . . . ad ʒß. vel ʒj.” *Geoff.* iii. 323. But  
 the water is pure water; and the Extractum perhaps of very little value.

C O N T R A Y E R V A.

S E C T. I.

Contrayerva, Radix Contrayerva, Drakena radix, *offic.* Cyperus longus  
 odoros Peruanus, *B. P.* 14. & C. longus inodorus Peruanus, *Ejusd.* Con-  
 trayerva Monard. *Clus. Exot.* 311. Contrayerva radix, *J. B.* 2. 741. Dra-  
 kena radix, *Clus. Exot.* 83. *J. B.* 2. 740. *R. H.* 1339. *Ger.* 1621. Contra-  
 yerva Hispanorum, sive Drakena radix Clusii, *Park.* 421. The Indian Spanish  
 Counter-poison, *Park.* Contrayerva, or Drake-root. — This is tuberous and  
 knotty, encompassed commonly with fibres, sometimes single, and sometimes  
 two or more hanging together, and united lengthways by slender strings; of  
 a reddish brown colour without, pale within, of a soft aromatic taste, and  
 pleasant aromatic smell: It is brought from America.

“ Ex Charcis, provincia Peruana, radices quædam advehuntur Iridis radi-  
 “ cibus valde similes, sed minores, & ficulnei folii odore. Hispani Indias  
 “ inhabitantes Contrayerva appellant, quasi dicas alexipharmacum. . . Gustata  
 “ radix aromaticum quiddam sapit, cum acrimonia conjunctum, quare calida  
 “ videtur 2. gradu.” *Monard.* l. c. This is the first account we have of it.  
 But Clusius having received in 1581 from Sir F. Drake some roots he brought  
 from Peru, where they were highly valued as an antidote; he called them  
 Drakena, and accurately described and figured them. “ Facultatem ratione,  
 “ valde conveniret cum radicibus veneno adversantibus, de quibus Monardes;  
 “ in his tamen aromaticum saporem, & caloris gradum desiderabam, quem  
 “ illis radicibus tribuit.” *Clus. Exot.* 84. Although not a few botanists made  
 the Contrayerva and Drakena different, yet *Th. Johnson* in *Append.* to *Gerard*,  
 makes them the same root. Vide p. 1621. And it is certain that what is  
 brought home under the name Contrayerva agrees exactly to *Clus.* descriptio,  
 & Icon Drakenæ radice.

It is true Dr. Howston was of opinion that the Contrayerva is the root  
 of the Dorstenia, Dentariæ radice, Sphendylî folio, placenta ovali; and Dor-  
 stenia, Dentariæ radice, folio minus laciniato, placenta quadrangulari, & un-  
 dulata: the roots of either of these being very much alike, he says, are the  
 Contrayerva *offic.* But, adds he, the Dorstenia Sphondylî folio, Dentariæ ra-  
 dice, of Plumier, differs from the former two, the leaves being ferrated, the  
 placenta quadrangular, “ and the roots consisting of several knobs tied toge-  
 “ ther lengthways. From which last particular, I am persuaded, that the root  
 “ of that species, is the Drakena Radix Clusii *Exot.* p. 83.” But I have the  
 “ Contrayerva *offic.* consisting of knobs tied together lengthwise, or two united  
 by a string, as it happens in many creeping roots, of which this is one. So



these three *Dorsteniæ*, seem to be gathered indifferently for *Contrayerva*, or *Drakena*. Vide Dr. *Howsen's* paper, *Ph. Transf.* No. 421. p. 195.

## S E C T. II.

It is a stimulating aromatic diaphoretic; called cordial and alexipharmic; and commended in malignant and pestilential fevers, bites or stings of venomous creatures, and as an antidote to all sorts of poisons, sublimate corrosive mercury excepted.

“ Calida est 2. alexipharmaca & sudorifera; præstantissimumque remedium adversus omne venenum, cujuscunque sit generis (excepto mercurio sublimato), vomitione id rejiciens, aut per sudores evacuens. Sed & amatoria pocula, ex pulvere hausto, educi ferunt. Ventris etiam animalia pellit. Quin & in peste felix ejus usus compertus est, ut & morbillis nigris. Dosis ʒj.” *Schroder.* p. 570. è *Monardo* fere tot.

1. It is evidently aromatic, and somewhat hot in the mouth, when long chewed; and though it can scarcely be called acrid, or disagreeable, yet the impression it makes on the tongue is pretty lasting. I can discover no astringency in it by the taste; neither does it turn a solution of vitriol black.—2. It keeps well, seeming to lose nothing by drying, yet the more recent, the better it is: though, as its consistence is firm and solid, it parts slowly with its active principles; whence its action and effects are, probably, pretty durable, though neither violent, nor troublesome.—3. It is thought one of the safest expellers of morbid matter in fevers with eruption: but its being such an antidote (as is said) against poison, venomous bites, &c. wants confirmation.

“ Nullo manifesto odore præditam esse observabam, sed saporem habere deprehendebam nonnihil adstringentem & linguam exsiccantem initio; diutius vero manducatam, tenuem suavemque acrimoniam in ore relinquere.” *Clus. Ex.* p. 84. “ Saporis astringentis, odoris aromatici.” *Dale.* l. c. “ Sapore est nonnihil astringente, amaricante cum tenui ac suavi quadam acrimonia si diutius in ore detineatur, odore aromatico levissimo. Radicis pars tuberosa eligatur; fibrosa vero, quæ fere insipida & inodora, rejiciatur.” *Geoff.* ii. 36. “ Ex odore & sapore, mediocri salis volatilis oleosi aromatici portione componi mihi videtur. Unde Hermannum eam in malignis febribus, cum præsertim alvus laxior est, non immerito commendare censeo. In substantia ad ʒj. in decocto ad ʒij. prescribitur.” *Geoff.* iii. p. 39. “ Saporis nonnihil adstringentis, cum suavi sed debili acrimonia; odoris aromatici sed exigui.” *Herman. Cyn.* 168.

## S E C T. III.

It may be given to ʒj. and upwards. It gives name to a compound powder, of which it makes  $\frac{4}{7}$  parts; and which may be given to ʒj. though ʒß. is seldom exceeded. It is used in the *Theriaca Edinensis*.

The dose in *Schroder* is ʒj; in *Albin. M. S.* ad ʒij; in *Quincy* ʒj.

C O S T U S.

## C O S T U S.

## S E C T. I.

Costus, Costus orientalis, *offic.* Costus Iridem redolens, *B. P.* 36. *Theat.* 670. *R. H.* 1348. Costus dulcis officinarum, *C. B. Pharm. Lond.* p. 8. *i. c.* C. dulcis officinarum, centaureo magno cognatus, *B. P.* 37. *J. B.* 2. 751. Costus Indicus, sive odoratus, *Ger.* 1620. C. Indicus Clusii, *Park.* 1582. C. Indicus Clusii; quibusdam Jocosus, *J. B.* 2. 750. Tiana-Kua, *H. Mal.* xi. 15. t. 8. *R. H.* 3. 645. Costus officin. *Dale* 250. Bitter and Sweet Costus. The root of this is pretty thick and long, brownish without, palish within, and somewhat spongy in the middle; of a hot bitterish aromatic taste, and fragrant smell, not unlike that of orrice, or violets, but stronger.

It grows in Guzarate, and other provinces of the East Indies; and in such plenty (says Bontius) that 120 lb. of it have been sold for *decem realibus*, that is about 5½ shillings. “Adulterari porro radicem hanc, ut auctor ait, non credo: nam vidi ego integrum Picol, quod pondus 120 lb. in auctione decem realibus distribui.” *Bontius*, Not. in *Garcia*, cap. 35. fol. 8. b.

*Dioscorides* mentions three kinds of Costus, viz. Arabicus candidus, Indicus niger, and Syriacus buxeus, l. 1. c. 15. p. 15. *Pliny* has “nigrum genus Costi, & candicans.” l. 12. c. 12. p. 305. *Galen* has but one. *Simpl.* l. 7. p. 52. F. “*Theophrastus Hist.* l. 9. c. 7. Costum solum nominat, & quidem inter ea, quæ ad unguenta apta sunt.” *B. P.* The Arabians, whom the latter Greeks, and the shops generally follow, distinguish it in amarum & dulcem. But *Garcias* (*Clus. Ex.* p. 205.) says there is but one Costus, “recens candidus, non amarus; vetus amarus & nigricans:” which *Acosta* (*Clus. Ex.* p. 273.) and *Bontius* l. c. confirm. But whether this is the Costus of the Greeks, or Arabians, I cannot determine. Vide *Geoff.* ii. p. 40.

“Ita cum olim unica esset planta, a Dioscoride quidam & Plinio secta fuit in tres, a Bauhino, autem in novem: & ne quid desit mali, tributum fuit nomen etiam aliis, v. g. Menthæ Græcæ, seu Corymbiferæ nuper dictæ, quam Costum hortensem Geoponici vocant; Agerato Dioscoridis, quod Eupatorii nomen habebit infra; Christophorianæ, quæ Costus niger dicitur; Angelicæ, Helenio, Thapsiæ, Petasitidi, Panaci costino Bauhini, quod est Pseudocostus Matthioli; herbæ costæ, cujus supra in Hieraciis mentio. “Horresne?” *Hoffman*, p. 194. Cost or Kast, according to *Garcias*, is an Arabian word, whence *καστος* & Costus.

The Costus offic. grows in Malabar, Surinam and Brasil, according to *Linneus*. See his *Hist. Cliff.* p. 2. for an accurate description of the plant from Surinam, in Guiana of S. America: and its character, *Gen. Plant.* N°. 3. p. 2. edit. 2. Although Mr. Dale agrees with *Garcias*, that the Costus vetustate fit nigricans, p. 251. yet his Costus nigra offic. is the Cinara sylvestris Cretica, *B. P.* 384. or Candy Artichoke, p. 104.



## S E C T. II.

It is aromatic, bitterish, attenuant, diaphoretic and diuretic; called stomachic, hepatic and uterine, yea and cephalic, pectoral, nephritic, nervine and what not; and commended chiefly in cold and phlegmatic diseases of the head, stomach and uterus, as in the vertigo, palsy, colic, obstructions, &c.

"Stomachicus, epaticus, uterinus, ac nephriticus est; calfacit, siccatur; attenuat, aperit, discutit. Hinc convenit in colica, obstructis mensibus & urina, hydropo, paralyti. *Præp.* 1. Oleum costinum Mesuæ. 2. Pilulæ marcostinæ. 3. Elect. caryocostinum." *Schrod.* 573.

1. It is aromatic, bitter, and strongly fragrant. "Violæ seu radicis Iridis odorem spirat, præsertim dum manditur, tantilla hirci graveolentia mixta; gustu peramara, scilicet senescens." *B. Theat.* 671. "Saporis acris amaricantis, aromatici, odoris fragrantis, ad Iridem Florentinam accedentis." *Dale.* l. c. "Odore quodammodo violaceo, ast valde nares feriente." *Albin. M. S.* "Sapore acri, aromatico & amaricante, odore fragrante, ad iridem Florentinam, vel violam accedente." *Geoff.* ii. 43. And (notantibus Hermann, & Albino in M. S.) it makes the urine smell of violets. — 2. It keeps pretty well; though it becomes less odoriferous when several years old. — 3. The ancients commended and used their Costus several ways, both outwardly and inwardly. Vide *Dioscorides*, l. c. And the succedaneum for it, according to Galen, was cedri fructus, or helenium. The *Edinburgh* and *London* Dispensatories allow zedoaria to be taken for it in the mithridatium and theriac, the only shop medicines it now shares in, the caryocostinum being obsolete. — It seems to agree much with the aristolochiæ in virtues.

"Hæc Costi radix inter medicamenta expectorantia, cephalica & uterina annumeratur. Humores attenuat & dividit. Diuresim & diaphoresim promovet. Dosis est ʒß. in substantia, & in infusione a ʒij. ad ʒß." *Geoff.* ii. p. 44. and this is all he says of the virtues of the Costus, though near five pages are employed about it.

It may be given to ʒß: in infusion to ʒj. Were it not for the two great opiates the shops would forget its name.

## CUCUMIS ASININUS.

## S E C T. I.

Cucumis Asininus, Cucumis sylvestris, *offic.* Cucumis sylvestris Asininus dictus, *B. P.* 314. *T.* 104. *H. Ox.* 2. 23. C. sylvestris, five Asininus, *J. B.* 2. 248. *R. H.* 647. C. sylvestris, *Dod.* 663. C. Asininus, *Tab. Ic.* 481. *Ger.* 912. C. Agrestis five Asininus, *Park.* 161. Cucumer Elaterii sylvestris, *Lob. Adv.* 288. *Ic.* 646. Momordica, pomis ovalibus, hispidis; foliis cordatis integris plicata dentatis, *H. Cliff.* 451. Elaterium officinarum, *B. J.* 2. 77. The Wild or Squinting Cucumber. — This has a large, long, branched, white root, of a very bitter and nauseous taste, and while recent somewhat fetid.

It

It grows wild in South-France, Italy, Sicily, &c. In our gardens it flowers in July, and ripens the fruit in September. It is a perennial plant, but the winter often kills it, unless it be housed. It sows itself however plentifully, squirting its seed to a considerable distance. For when the fruit is ripe, by its own elastic contraction, it drives out the footstalk, as it were a cork out of a bottle, and along with it the greatest part of the seed it contains, with the juice surrounding them. Touching it hastens a little this ejection.

"The fruit when ripe burst on a light touch, and sheds its seed with violence, and hence was named by the Greeks *Elaterium*." *New Dispens.* p. 120. Did the author ever see this?

"*Sixus aegyptios*, &c. *Cucumis agrestis* a sativo fructu solo distat, quem longe minorem parit, oblongis glandibus similem: folia sarmentaque sativi refert: radix est candida, magna. Nascitur in ruderibus & sabuletis, frutice in totum amaro." *Diæscorid.* l. 4. c. 154. who after giving the virtues of the succus, radix, cortex & siccus radices, both externally and internally applied, describes the elaterii præparatio, beginning thus, "*Cucumeres eligito, qui simulatque tanguntur quasi resiliendo succum intra se contentum ejaculentur*, &c. Hence, though the description is not altogether exact, it is evident that our *Cucumis Asninus*, is the *sixus aegyptios*, or *sixuos aegyptios*, antiquorum. It is mentioned also by *Theophrastus Hist.* l. 7. c. 6. & l. 9. c. 10. and *Hippocrates* orders not only the elaterium often; but also the *sixuos aegyptios*, medulla, radix, foliorum succus, fructus & semen. "*Cujus (elaterii) causa nisi maturius incidatur (fructus) semen exilit oculorum etiam periculo*," says *Pliny*, l. 20. c. 1. Vide *Mesue De Simpl.* c. 9. p. 59. b. infra citat.

## S E C T. II.

It is a violent (if not virulent) dissolving and stimulating diuretic, cathartic and emetic; evacuating powerfully serous, or watery humors, (water, phlegm, bile and melancholy, *Hippoc.*) and is commended internally in the dropsy, inveterate female obstructions; and wherever the strongest, and most shaking cathartics are wanted, ut in maniacis, & epilepticis quandoque. Externally it discusses and deterges. I prefer it to the elaterium.

"Instillatus foliorum succus aurium doloribus confert. Radix illita cum polenta vetus quodvis œdema discutit: imposita cum resina terebinthina tubercula rumpit; cocta ex aceto, illitaque, podagras discutit: sed & ejus decoctum ischiadicis infunditur, & in dentium dolore colluitur. Eadem arida tritaque vitiligines, lepras, & impetigines abstergit: cicatrices nigras emendat, & maculas faciei expurgat. Quin & radices succus sesquiboli pondere, cum minimum, itemque cortex acetabuli quarta parte bilem ac pituitam purgat maximeque in hydropicis, idque citra ullam stomachi injuriam. Radicis selibra in vini præsertim Lybici sextariis duobus conteritur, danturque ex eo jejunis terni cyathi, tertio quoque die, dum tumor plurimum subsederit." *Diæscorid.* l. c.

1. It is indeed excessively bitter and nauseous, also penetrating and somewhat hot to the taste, leaving a lasting impression behind it; yet bryony exceeds in these, and is far more acrid and fetid, though its effects inwardly taken



are far milder. — 2. The virtues attributed to it, when outwardly applied, in easing pains, discussing tumors, cleansing the skin of scurf, &c. and detarging ulcers, are much the same with those of briony. Are they more anodyne? — 3. The leaves are only a little bitterish to the taste, but as it were a little benumb the tongue and lips. I poured boiling water on some (two days dried) and after three days maceration the water was but little tintured, and had very little taste. It diluted syrup of violets, reddened a little tinct. heliotropii, made a solution of vitriol somewhat turbid, and precipitated a small quantity of whitish sediment, which sp. vitrioli dissolved. Hence they appear to be less acrid than the root: and alcali and acid here explain nothing. — 4. “Analyfi  
“chymica ex totius plantæ floridæ cum aliquot fructibus lbv. per retortam  
“distillatis prodierunt humores (primo saporis & odoris subacris, deinde sapo-  
“ris & odoris expertis, tum acidi & tandem urinosi) lbiv. 3x. 3vij. gr. liv;  
“salis vol. gr. xij; olei spissi 3j. gr. liv. Carbo pendebat 3ij. 3vj. gr. xxxvj;  
“unde cinerum 3ij. 3j. gr. liv. & inde salis fixi alcali 3vij. gr. lxij. (ergo terræ  
“3iv. gr. lxiv.) Jactura fuit gr. lx.” Vide *Geoff.* iii. p. 376. who adds, “Hæc  
“planta igitur abundat sulphure, tum tenui & acri, tum crasso, (*how!*) ac  
“sale ammoniaco cum mediocri quantitate salis urinosi. Tota planta exsic-  
“cata, & prunis injecta fulgura, quasi nitro copioso turgida, & odorem fœ-  
“tidum spargit, ab illo oleo crasso. Omnes plantæ partes catharsim vehe-  
“menter movent. Radicum vis cathartica major est quam foliorum, minor  
“vero quam fructum.” Nitre has no share in its effects: the small jactura I think not remarkable here. — 5. All the moderns agree, that this plant is a violent and dangerous cathartic *ἀνω καὶ κάτω*, yet not so sensibly acrid as many others, which are far more safe; consequently I suspect it of virulency. The root is not in use here, but I think it, or an Extract made of it preferable to the Elaterium *offic.* because we may be more certain as to its dose, as will presently appear. “Cucumis agrestis . . . purgat potenter pituitam vomitu-  
“& dejectione, & interdum bilem, serosumque quoque excrementum, itaque  
“adeo a juncturis mirifice trahit, præsertim succo & radice: ob id earum  
“dolores sanat. . . Vim namque purgatricem scammonio proximam ei tribuit  
“*Jannitius*. Si enim vacuet immodice, etiam sanguinem trahit. — Succus  
“quoque ipsius naribus injectus cum paucis lacte, hæmicraniam sanat, cepha-  
“lalgiam quoque veterem & epilepsiam. . . Succus quoque & decoctum tum  
“fructus tum radice hydropem juvat potu (valenter enim aquas serosas va-  
“cuat) & icterum & obstructionem hepatis & lienis. — Radix resolvit, tenuat,  
“tergit, siccat, solvit molestè & tardè, aperit obstructa & ora venarum. Ne  
“ora venarum aperiat & ulceret hic siccus, & cum torminibus & anxia mo-  
“lestia vacuet, datur cum bdellio vel tragacantho, vel lacte dulci recenter  
“mulso, aut mulso & sale, promptius autem purgat cum paucis sale gemmæ-  
“& aromatibus. . . Datur succus a gr. x. ad ʒj; pulvis radice a gr. xv. ad ʒß; decoctum ab 3ij. ad 3iv.” *Mesue*, l. c.

## S E C T. III.

It may be given in powder to ʒj: though I think ʒß. a sufficient dose; and would begin with a few grains, *e. gr.* R Jalap. pulv. ʒj. rad. cucum. sylvestr. pulv.

pulv. gr. v. syr. de rhamno q. f. ut f. bolus purgans in hydropē. In infusione, or decoction, ℥ij. may suffice. Of this plant is prepared the Elaterium.

“Datur radix in pulvere a gr. xv. ad ʒß; in decocto a ʒß. ad ʒj.” *Fernel*. p. 256. “Dosis radicum, secundum Meluem est ad ℥j, ego autem exhibeo usque ad ʒj. radices siccatae; & aliquando ℥ij. tantum, & nunquam excedo ʒj. sæpe tamen ad ʒj. ascendo, quamvis rufus non exhibeat nisi mediam drachmam.” *Fallop. De Purgant.* c. 55. p. 122. “Datur extractum radicis cum sp. vini tartarificato a ʒß. ad ℥j.” *Herman. M. S.* “Dosis radicis est ad ℥j. Ex ea contusa, & cum vino cocta, vulgus pharmacopœorum parat extractum, & falso nomine Elaterii vendit. Dosis a gr. xv. ad xx.” *Albin. M. S. (Minus accuratum.)* “Dosis radicis a gr. xv. ad ʒß. in pulverem redactæ. R Rad. Cucum. Asin. pulveratæ ʒß, vini Hispan. ʒxij. Macerentur per triduum. Vinum hoc cum pulvere, tribus partitis vicibus, per tres dies continuos mane, jejuno ventriculo propinetur. Deinde, 3 aliis vel 4 intermissis diebus, rursus aliud vinum hydrogogum per tres alios dies exhibetur. Sic citra molestiam plurimos hydropicos Capivaccius sanavit.” *Geoff. iii.* 379. Are not here three doses out of ʒß?

Elaterium *offic.* or as we commonly have it in the shops, is in little thin cakes, or broken pieces, not a quarter of an inch thick, often thinner; of a very bitter, and somewhat acrid, or hot and penetrating taste, affecting the tongue, but the lips more, as the leaves do, as is observed above; has no scent, but when burning affords a smell not disagreeable. It is of a light-gray colour, or ashy-white, both without and within; and looks like a fæcula, but how it is prepared, and from what part of the plant, is not commonly known.

The Elaterium of *Dioscorides* is the fæcula of the juice of the fruit of the wild cucumber, the preparation of which he very circumstantially describes, l. iv. c. 155. p. 300. adding, “Elaterium porro optimum creditur quod cum candore modicè humectum est, minime ponderosum, læve, gustu amarissimum, quodque lucernæ admotum facile accenditur. At quod porraceum est, scabrum & ad aspectum turbidum, ac ervi cinerisque plenum, grave & vitiosum est. Nec desunt qui cucumeris succo amyllum immisceant, ut candorem & levitatem ementiantur. A bimatu ad decennium purgationibus accomodatum est.” These marks agree tolerably with those of the Elaterium of the shops; but if it were made as he directs, it would agree with none of them. “Impossibile est, inquit Cardus in Dioscord. succum de natura sua viridem, fieri album cum siccatur. Descendit igitur eo, ut dicat Dioscoridem miscuisse notas succi e radice, qui vere albus est. Exercitatis. Melichius ait album non esse, si amyllum misceatur.” *Hoffman.* p. 23. I made the experiment, following Dioscorides’s directions in every material point, and had a fæcula: but it was of a deep green colour when dried, heavier and less inflammable than the common Elaterium.

Again; Theophrastus and Pliny say Elaterium will not burn till it be fifty years old, and that the older it is, it is still the better medicine. “Omnium medicamentorum diuturnissimum Elaterium est, optimumque quod vetustissimum. Itaque Medicus quidam, Vir haud gloriosus, neque mendax, Elaterium ducentorum annorum, virtute mirabile servare apud se retulit, eo a quodam munere donatus. Causa quamobrem tam longo tempore ser-

“vari.



“vari possit, est humoris copia. Ea de causa, postquam præciderint, in cinere humidum ponunt, & tamen ne ita quidem siccare potest, sed quinque-  
 “gesimum annum usque lucernis admotum lumen extinguit.” *Theophrast. Hist.* l. 9. c. 14. p. 1112.

“Elaterium . . . incipit a trimatu . . . melius quo vetustius : fuitque jam  
 “ducentis annis servatum, ut autor est Theophrastus. Et usque ad quinque-  
 “gesimum lucernarum lumina extinguit.” *Plin.* l. 20. c. 1. “Elaterium  
 “similiter ut scammonia evacuat. Eligendum id quod prasini coloris est, &  
 “leve, & non vetustius anno. Datur ob. iii. pondere, tritum cum lactis he-  
 “mina.” *Paulus*, l. 7. c. 4. p. 648. “Triennio servatur, post sex menses  
 “utendum.” *Mesue*, l. c. Hence the Elaterium of Theophrastus was very  
 different from that of Dioscorides ; though, prepared his way, it is liker to  
 that of Theophrastus than his own Elaterium optimum.

As the ancients, so also the moderns, differ about the Elaterium. According  
 to some (*Pb. Augst. Cod. Med. Schrod. Pb. Amstel. &c.*) it is the expressed  
 juice of the fruit inspissated. “Siccatur ut scammonium aut aloë.” *Mesue*, l. c.  
*Parkinson* (p. 162.) pretends to reconcile Theophrastus and Dioscorides, by  
 saying that what is made of the substance of the fruit, though very gently  
 pressed through a fine sieve, will be green, and continue moist many years,  
 relenting with the air, “when as the other sort made of the whitish wheyish  
 “liquor, that droppeth through the sieve of its own accord in the cutting of  
 “the fruit, without any touch of pressing, will be white when it is dried, and  
 “remain hard, white and dry for many years, unless it be left open to the  
 “moist air, or stand in a moist place, to cause it to relent. The green also  
 “is not of half that force or violence, to purge either upward or downward  
 “as the white Elaterium.” Though he, says he, has made both the green  
 and the white, which will continue hard unless, &c. and so will his green. I  
 also made what he calls the white, that is, I carefully collected the wheyish  
 juice by itself, and inspissated it very cautiously, but it was as black as a com-  
 mon extract : and though fully dried over warm sand in a night’s time, and in  
 a pretty dry place, relented to the consistence of an Electuary : which it did  
 again and again after repeated exsiccations : and all I had of it from about  
 fructuum lbv. was barely half an ounce. Again, according to others, the  
 Elaterium is an Extractum fructus, or root, or white plant : which is the most  
 frugal and perhaps the best way of making it. “Cucumer Asininus . . . scatet  
 “succo viscido & acri, ex quo fit extractum Elaterium, dictum, quod ordinariè  
 “hic existit in parvis trochiscis fusci coloris : saporis est acerrimi, amari ingrati  
 “& nauseabundi. Dosis est ad ʒß.” *Nucl. Belg.* 94. Nostrates integram plan-  
 “tam contundunt, succum exprimunt, & exsiccant.” *Albin. M. S.* I made  
 a fæcula of the root also once and again : it much more resembled the Elaterium  
 of the shops than that made from the fruit, but wanted its bluish cast ; which  
 perhaps a dash of the succus fructuum might give it : it was also more brittle.  
 “Fæcula rad. albissima est.” viz. if well washed : and it may be used like starch.

“Fæcula Cucumeris Asinini, Elaterium dictum, *Pb. Edens.* 1756.

“℞ Cucumerum Asinorum nondum maturorum q. v. Incidantur & in vas  
 “idoneum defluat succus sine expressione qui subsidat donec partem  
 “crassiorem deponat. Effuso humore supernatante, crassamentum ca-  
 “lore solis exsicceetur.” But nothing will subside ! though it has stood  
 so in the three last editions.

The

The Elaterium was formerly amongſt the ſimples in the *London Diſpenſatory*. But in the new one the preparation of it is directed thus: “ Cucumeres “ agreſtes maturos ſcinde, & ſuccum leviffimè expreſſum trajice per ſetaceum “ tenuiffimum in vas vitreatum; deinde per aliquot horas ſepone, donec craſ- “ ſiorem partem depoſuerit. Pars tenuior ſupernatans effundatur vaſis incli- “ natione, & quod reliquum erit, filtrando ſeparetur. Craſſiorem vero par- “ tem, quæ reſtat panno linteo coopertam ſoli, vel alii leni calori expone, “ donec exaruerit.” So that the preparation is much the ſame as in ours: but more diſtinct. “ The filtre here meant (ſays *Pemberton*, *Diſp.* p. 161.) is a “ twiſt of linen thread or cotton, laid over the edge of the veſſel, &c.” But there is no occaſion for any. — I made it in this manner alſo, and had from fructuum lbij. about gr. v. of this Elaterium of a dark-green colour and very brittle. With *Quincy* the Elaterium is an inſpiſſated juice, or extract made of the wild cucumber, *Pb.* p. 182. “ It is, ſays he, the fæcula, that is the ſet- “ tlings of the juice of the wild cucumbers dried.” p. 476. In the *Cod. Medi- cam. Pariſ.* edit. 1737, it is an extractum e ſucco fructuum maturorum. But in edit. 1748, Elaterium is the expreſſed inſpiſſated juice of the fructus matu- reſcentes Cucumeris ſylveſtris. “ This name was applied likewiſe to the in- ſpiſſated juice of the fruit.” *New Diſpenſ.* p. 120: though in p. 245 it is a fæcula; and the filtration at length explained. *Did the author ever ſee a fæcula made?*

Now ſince there are many ſorts of Elaterium, and all of them purgative; yet as it is not probable that all are of the ſame ſtrength, a phyſician ought to be cautious in ordering it. “ Verum eſt purgant omnes hi ſucci, & ſatis “ violenter: at medicis rationalis valde intereſt ſcire, quale ſit Elaterium, quod “ pharmacopœus imponit tabulæ.” *Hoffman.* p. 23.

Elaterium ἐλατηριον, ab ἐλαυνω agito, moveo, ſtimulo, tumultuario modo pello. “ Elaterii vocem latè vel ſtriçtè capiebant antiqui: ſtriçti pro Cucu- “ meris tantum ſucco, ſive medicamento ex eo compoſito: latè, vel pro omni “ deleterio medicamento quavis evacuatione hominem necanti, vel pro valido “ purgante. Hippocrati Elaterium medicamentum eſt quod per alvum ex- “ purgat, &c.” *Bod. in Theophrast.* p. 1128.

Elaterium has the virtues of the root, and is uſed where the root is proper, but here almoſt only in dropſies. The doſe is made ʒß. commonly, but gr. v. may ſuffice. It does better, and is ſafer as a ſtimulus, than as the baſis of a cathartic, taken to gr. ii.

“ Purgans eſt violentum humoris ſeroſi, movet menſes, fœtumque interi- “ mit; unde rarus ejus uſus, præcipue cum nec malignitate careat. *Præpar.* “ 1. Electuarium depuratum. 2. E. correctum, ſp. vitrioli & oleis. 3. Fit “ etiam extractum ex depurato ſucco cum ſp. vini; ut & fæcula ex ſucco “ Cucumerum maturorum, cujus vires vide in *Obſerv. H. ab Heers.* Doſis gr. j. ac gr. ij.” *Schroder.* p. 780.

What has been ſaid of the root is applicable to the Elaterium however pre- pared, if it be not rendered inſipid or an uſeleſs fæcula. All the parts of the plant ſeem to partake of the ſame malignity; though they are not all equally bitter and nauſeous; and ſo perhaps not all equally, or in the ſame degree cathartic. It is ſcarcely to be imagined that the thickened juice, extract and fæcula, of the whole plant, or of any part of it, are of the ſame force as a cathartic and emetic. But ſince we are not certain which is ſtrongeſt, and



most dangerous, whatever preparation of the Elaterium we use, we ought to be as cautious as if it were the most violent. The ancients seem to have extolled its virtues, either inwardly or outwardly applied, out of measure. Vide *Dioscorides* and *Pliny*, l. c. and some of the moderns seem to agree with them. Vide *Lister de Hydropse*, (edit. *Lugd.* 1718, in 4to.) p. 17, and *Mesue*, l. c. Yet all own that it is dangerous. "Aiunt autem solum hoc (*viz.* Elaterium) ex omnibus medicamentis maxime purgationem immodicam per superiora efficere. Hæc igitur vis peculiaris illi tribuitur." *Theoph. Hist.* l. 9. c. 14. p. 11, 12. Others condemn it altogether. But *Sydenham's* way of using it (*Op.* p. 488.) is always the best. "Elaterium sive fæcula Cucumeris agrestis, potenter, in permodica quantitate vires suas exserit, in conturbanda alvo, & fæcibus, cum serosis & aquosis humoribus copiose egerendis; adeo ut ejus gr. ij. plerisque in genere loquendo, corporibus dosis aptissima sunt. Ego permiscere soleo pilularum ex duobus ʒj; quas in pilulas tres exiguas formandas, ac mane sumendas impero," that is as a stimulus. But here *Elat.* gr. i. might at first suffice; and four or five pills would not be very small. "Aliqui eo utuntur ad hydropem, apoplexiam & morbos chronicos; sed cum, sicut etiam ipsa planta, per externam applicationem, gravia symptomata facile inducat, ideo ordinariè ab ejus usu abstinemus." *Nucl. Belg.* p. 94. *Verbo*; it may sometimes do service in some dropsies, asthma, epilepsies, and manias; and in such cases only I would try it.

The dose in *Dioscorides* is à gr. v. ad ʒß: *Pueris* dat *chalc.* ij. *i. e.* gr. iv: In *Aëtius*, *Paulus*, *Actuarius* ad ʒß: in *Mesue* a ʒß. ad ʒj: in *Bontius* (*Med. Ind.*) a ʒj. ad ʒß. *Massarius* gives it to gr. vi: *Fernelius* to gr. xx: *Sennertus* to ʒj: *Herman*, in *M. S.* a gr. v. ad vij: *Albinus*, in *M. S.* the true to gr. x; spurious to ʒj: *Quincy* to gr. v: and *Boerh.* in *Lib. de M. M.* to gr. iv. only. "Revera enim ita est, ut post *Fallopium* (ait *Massaria*) ad ʒß. nemo sanus ascenderit; imo dicit se nunquam superasse, & quidem cum aloephang. ʒj. Impius vero procul dubio est *Weckerus*, qui ʒj. integram exhibet." *Hoffman*, p. 25. "Hodie Elaterium præscribitur a gr. ß. ad gr. ij; quæ stimuli loco cum aliis purgantibus tantummodo admiscetur." *Geoff.* iii. 378. I cannot find it in *Cartheuser*.

## C U R C U M A.

## S E C T. I.

*Curcuma*, Radix *Curcuma*, *Crocus Indicus*, & *Terra merita*, *offic.* *Cyperus* Genus ex *India Matthioli*, *B. P.* 37. *Curcuma*, *B. Theat.* 879. *Curcuma* radice longa, *H. L.* 209. *Id. & Descript.* *Curcuma* sive *Terra merita* officinarum, radice crocea, *J. B.* 2. 740. *Crocus Indicus*, *Garc. Clus. Exot.* 210. *Cyperus Indicus* *Dioscoridis*, *Ger.* 33. *Curcuma*, *Park.* 1583. *Curcuma* longa, *C. B. Theat. H. Ox.* 3. 253. *Manjella Kua*, *H. Mal.* xi. p. 21. *Terra merita*, *Curcuma officinarum*, *Lob Adv.* 33. *Cannacorus* radice crocea sive *Curcuma officinarum*, *T.* 367. *Curcuma*, *Lin. G. P. N°.* 6. p. 3. *Turmerick*. — This has a solid oblong tuberous root; of an ashy-colour without, saffron-coloured within, of a warm bitterish aromatic taste, and pretty fragrant smell. "It is a longish,

“ a longish, firm, tuberous root, of a brownish yellow on the outside, and a  
 “ deep saffron colour within; of a strong scent, and a hot somewhat bitterish  
 “ taste.” *Miller, Bot.* 166. The long and round seem to be only different  
 parts of the same root. *Miller* does not observe any such distinction; and *Dale*  
 says longa est officinalis.

It is brought from the East Indies, where only it grows naturally: but it is  
 also cultivated very plentifully in gardens: (“ Vix hortum in oriente reperire  
 “ licet, in quo Curcuma non colatur.” *H. L.* “ Hic in sylvis tam copiose  
 “ crescit, ut inde vel integras naves onerare possis.” *Bontius in Garz.* f. 9.)  
 as it is very much used in medicine, diet, and dying.

Some think it the Cyperi genus in India nascens Zingiberis effigie, *Dioscorid.*  
*l.* 1. c. 4; & Indica Cyperis Zingiberis effigie, *Plinii l.* 21. c. 18. But it can-  
 not be said to be a Psilothrum. “ Vehementi amaritudine, dum recens est,  
 “ caret, ob multam humiditatem; siccatae vero acris est, sed non adeo ut  
 “ Gingiber.” *Garc. Clus. Exot.* 211. Curcum is said to be an Arabian name.

## S E C T. II.

It is a bitterish aromatic attenuant and diuretic; called hepatic, splenic,  
 stomachic, and uterine; and commended in the jaundice, vapours, spleen,  
 dropsy, hard labour and other female diseases, obstructions of the viscera, &c.

“ Dicata est vesicæ biliaræ, stomacho & epati, hinc & lieni ac utero. Calf.  
 “ & sicc. 2°. amara est, abstergit, attenuat, aperit, digerit, discutit, menses  
 “ movet. *Ufus* in ictero, hydrope, cachexia. *Præp.* Species diacurcuma.  
 “ *N.* rectius species diacrocu nominantur, quippe curcumam non admittunt.”  
*Schrod.* 578.

1. It is not acrid, nor disagreeable either in taste or smell. “ Saporis sub-  
 “ acris, subamaricantis, odoris non ingrati.” *Dale* 250. “ Sapore subacri  
 “ subamaricante, odore non ingrato, ad zingiber accedente, sed debiliore.”  
*Geoff.* ii. 45. “ Gustus acris, amaricantis, aromatici, pinguis, odoris fragran-  
 “ tis. . . Donatur sale oleoso volatili, partibus blandis, viscosis immerso,” *H. L.*  
*l.* c: so that, on account even of its taste, it is much used in sauces for boiled-  
 fish and flesh-meat. — 2. It is very much used in dying: “ Colorem suum  
 “ cum urina communicat, quæ ab ejus usu excernitur crocea, liuteamina tin-  
 “ gens.” *Rieger Introd.* 2. p. 1216.—3. It is also highly valued by the Indians  
 as a medicine. “ Nullum frequentius condimentum apud nostros Indos est,  
 “ in coctis piscibus & carnibus elixis. Præterea nobilissimus ejus est usus in  
 “ medicamentis, tam topicis, quam intro exhibendis, in omnibus obstructio-  
 “ nibus viscerum, ac mesenterii hic frequentissimis: tum in mulierum morbis  
 “ nullum æque celebrant Malaicæ mulieres, quam hoc borbory, tam divinis  
 “ laudibus efferunt in facilitando partu, ac urinæ difficultatibus, ac renum af-  
 “ fectibus. Tum in utero remedium est specificum: ac certe ut verum fatear  
 “ nihil æque in his affectibus præstantius in quotidiano usu reperi, quam  
 “ præstantissimum hoc inter omnia medicamentum.” *Bontius in Gar.* c. 39.  
*p.* 1. fol. 10. *Hoffman* gives an instance of its effect in expelling, as he  
 thought, stones out of the gall-bladder. Vide *Schroder, Mangeti*, p. 403.

“ Curcuma sale oleoso volatili, cum sale salso amaro conjuncto, & utroque  
 “ viscidis & terrestribus partibus implicito constare videtur. Præstantissimum  
 VOL. I. I i i “ habetur



“ habetur medicamentum ad pulmonum, jecoris, lienis, mesenterii & uteri  
 “ obstructions resolvendas. Fœminis menstrua provocat, & difficultatem  
 “ pariendi juvat. Sed imprimis singulare & specificum est remedium in ictero.  
 “ In substantia a ʒj. ad ʒj, in infusione vel decocto ad ʒij, præscribitur.”  
*Geoff. ii. 47.*

## S E C T. III.

It may be given in substance to ʒij; in infusion to ʒj. or ʒß. It is an ingredient in the Decoctum ad Ictericos, *a very disagreeable medicine.*

## L E C T U R E XL.

## C Y C L A M I N U S.

## S E C T. I.

**C**yclamen, Arthanita, Panis porcinus, & Umbilicus terræ, *offic.* Cyclamen orbiculato folio inferne purpurascente, *B. P.* 308. *H. Ox.* 3. 552. *T.* 154. Cyclaminus folio rotundiore vulgatiore, *J. B.* 3. 551. *R. H.* 1205. *C. orbicularis rotundifolius*, *Dod.* 337. *C. orbiculato folio*, *Ger.* 343. *C. vulgare folio rotundo*, *Park. Par.* 198. Cyclamen, *H. Cliff.* p. 49. Sowbread. —The root is round and somewhat flat, of a dark-brown colour, or blackish without, white within; of a nauseously insipid taste at first, then subacid and as it were benumbing the tongue, even when recent and juicy; and of no scent.

It grows on the Alpes, in Austria, Stiria, &c. flowering in autumn. “ Semen terræ commissum in germen non abit, sed in tuberculum aut radiculum convertitur, præter reliquorum seminum naturam, unde postea foliola promit.” *R. H.* Cyclamen, κυκλαμινος, a κυκλος, circulus, from the form of the root, or leaves, or spiral coiling of the flower-stalk. Arthanita or Artanita is said to be Arabian. It is called Panis porcinus from the figure of the root, or because it is not eatable, rather than from swines eating it; for Pliny says it kills them. All agree that this is the Cyclamenos Græcorum, it being tolerably described by *Dioscorides*, l. 2. c. 194. It is several times ordered by Hippocrates, inwardly as a purger of bile and pituite, as well as outwardly. “ Cyclamen hederæ folio *B. P.* est species quæ in officinis nostris invenitur.” *Dale*, 253.

## S E C T. II.

It is reckoned so violent and virulent a cathartic, that it is never now given inwardly. Externally it is said to dissolve and discuss strumous and scirrhus tumors, cleanse the skin, and foul ulcers; and is in some places used in errhines, clysters, cataplasms, ointments, &c. but never here.

“ Calci.

“Calf. sicc. 3. potenter incidit, aperit, abstergit, errhinum est. *Ufus præcip.*  
 “in obstructis mensibus, in pellendo fœtu, in iſtero, in calculo expellendo,  
 “strumis ac tuberculis discutiendis. Interne cauto opus habet, magisque ex-  
 “terno usui proſtat. *Præp.* Succus, sed raro proſtat. Unguentum de artha-  
 “nita majus, & minus.” *Schröder.* “Purgat cum tanto flagitio pituitam  
 “& bilem, ut nemo audeat dare interius. Quare etiam de doſi ſolicitus non  
 “ſum; ut & de correptione.” *Hoffman.* p. 25. “Unguentum de arthanita  
 “ventriculo impositum, vomitum excitat; abdomini catharſim, renibus uri-  
 “nas promovet, ſi præſertim oleum e granis tilli expreſſum admisceatur.”  
*Geoff.* iii. 393.

1. Though I have once and again attentively taſted the recent root, I could diſcover no bitterneſs, pungency nor acrimony, except that benumbing im-  
 preſſion in the mouth which ſeveral virulent plants make. “Saporis eſt  
 “valde acris, ingrati, pungitivi. . . Radix recens valde acris eſt, ubi vero  
 “exſiccata eſt, nulla acredo percipitur.” *Geoff.* iii. 391. “Saporis acris,  
 “pungitivi, exurentis, ingrati, odoris nullius. . . Radix recens eſt valde acris,  
 “ubi vero exſiccata, nulla acredo percipitur.” *Herm. Cynof.* p. 111. (*The New  
 Diſpenſ.* p. 86. contains only a tranſlation of *Geoffrey.*) It is ſomewhat ſingular  
 that none of the authors cited above, except the two laſt, take any notice  
 of the taſte of this root. — 2. “Analyſi chymica radicum recens effoſſarum  
 “lbv præbuerunt humorum lbiv. 3vj. gr. lxxvij; olei ſpiſſi 3j. 3ij. gr. xij.  
 “Carbonis fuere 3vij. 3j: unde cinerum 3j. 3j. gr. xlvij; & inde ſalis fixi  
 “alcali 3iv. gr. xxxvij. (ergo terræ 3v. gr. x.) & Jactura fuit 3j. 3ij. gr. lxx.”  
*Geoff.* iii. 392: who adds “Salem eſſentialem obtinet tartareum, cum oleo  
 “tum tenui & acerrimo, tum craſſo conjunctum.” But how he learned that  
 I know not: the analyſis ſhews nothing of this kind. — 3. It is ſaid to irritate  
 ſtrongly in errhines, clyſters, peſſaries, &c; to purge when applied to the  
 abdomen; to diſcuſs even ſcirrhouſ tumors, &c. “Tradunt ſi prægnans  
 “mulier radicem eam tranſgrediatur, abortum fieri.” *Dioſcorides*, l. c. where  
 ſee many more wonders it can do. — 4. All are now agreed that it is virulent,  
 operating violently, and yet ſlowly, cauſing worſe ſymptoms than the Elate-  
 rium. “Cyclamini radix ad exhalationes inflammationum valet, & ad men-  
 “ſtrua & ad ulcera ex melle. Succus ad caput purgandum, cum melle in-  
 “fuſus, & ad inebriandum, ſi vino dilutum potui deſ; utile vero radicem ad  
 “accelerandum partum adalligare. Valet & ad philtra, ſed in eum uſum,  
 “effoſſa comburitur, dein vino irrigata in paſtillos digeritur, uti fœcis qua  
 “maculæ eluuntur.” *Theoph. Hiſt.* l. 9. c. 13. p. 1052. “Cyclaminum in  
 “uſu eſt ad comminuendum lienem, & ad purgandum caput per nares: per  
 “os autem non exhibetur ad purgandum; ſed eſt in uſu ung. de arthanita,  
 “quo inungimus umbilicum, pueris & mulieribus atque aliis delicatis, no-  
 “lentibus aſſumere medicamenta ad leniendam alvum. Vel contundimus  
 “Cyclaminum viride, et miſcemus cum cerato roſaceo, et inungimus inguina  
 “atque umbilicum, et ſubducitur alvus.” *Fallop. Purg.* c. 66.

## S E C T. III.

The doſe mentioned by authors is commonly 3j in ſubſtance, 3ij in in-  
 fuſion. I would not exceed ʒß. in ſubſtance at firſt. “Plebeii robuſtiores ca-  
 I i i 2

“piunt



“piunt substantiam ejus ad ʒj. & pro decoctis ʒʒ. Sed tutior est extractum cum sp. vini ad ʒʒ.” *Herm. M. S.* “Dosis est ʒj: alii ad ʒij dant. Corrigitur ejus violentia melle vel acido. In hydropē & Extracti cyclam. ʒʒ, oxymel. ʒʒ, aquæ cinnamom. ʒij. F. haustus.” *Albin. M. S.* “Plebei robustiores ejus pulverem ad ʒj, in decocto vero ʒʒ. usurpant. . . Sed parum tutus est illius usus internus; faucium enim, ani, ventriculi & intestinorum inflammationem excitat.” *Geoff. iii. 392.*

It is one of 68 ingredients in the Empl. Diabotanium; and of 128 in Aqua Generalis *Cod. Medicam.* ed. 1748. which retains also a very compound unguentum de arthanita.—But here it is not used.

## C Y N O G L O S S U M.

### S E C T. I.

Cynoglossum, Cynoglossa, Lingua cervina, *offic.* Cynoglossum majus vulgare, *B. P.* 257. *T.* 139. *Ger.* 840. *Park.* 511. *H. Ox.* 3. 448. Cynoglossum, *Dod.* 54. C. vulgare, *J. B.* 3. 598. *R. H.* 489. Cynoglossum, *Ger. R. Syn.* 226. C. foliis ovato-lanceolatis, *H. Cliff.* p. 47. Hounds-tongue.—The root of which is long and thick; of a dark-brown colour on the outside, white within; of a disagreeable viscid and sweetish taste at first, then bitterish; and of a fetid urinous smell.

It grows in fat and rubbishy places, by road-sides in Britain, Holland, France; only in the colder and more northern, or temperate countries, (vide *T. Hist.* p. 74); flowering in June the second year: it is not the Cynoglossum of the Greeks or Romans. Vide *Dioscorid.* l. 4. c. 129. and *Plin.* l. 25. c. 8. “Cynoglossum folia habet plantaginis latifoliæ at angustiora & minora, lanuginosa. Caule vacat, humique sternitum provenit in sabuletis. Folia cum fuillo adipe veteri trita, canum moribus, alopeciis, ambustisque medentur. Ipsi vero herbæ decoctum ex vino potum alvum emollit.” *Dioscorid.* l. c. cap. totum. “Jungitur & (*viz.* Plantagini) Cynoglossos caninas imitans linguas, topiariis operibus gratissima. Aiuntque quæ tres thyrsos feminis emittat ejus radicem potam ex aqua ad tertianas prodesse, quæ quatuor ad quartanas. (Vide Arnoglosson *Dioscoridis* l. 2. c. 152. p. 140.) Est alia similis ei quæ ferat lappas minutas; ejus radix pota ex aqua, ranis & serpentibus adversatur.” *Pliny*; whose Cynoglossos alia, is perhaps a Cynoglossi species: but neither appear to be the Cynoglossum of Dioscorides. And Galen, Oribasius, Aëtius, Paulus, Serapio, Rhafis, Avicenna (notantibus *J. B. & Hoffman.*) have no Cynoglossum Creticum latifolium foetidum, *B. P.* 257, which is the Cynoglossa vulgaris *Col.*, is common in Provence, Spain, and Italy, as Mr. *T.* observes, l. c. See Columna 1. 179. Aëtius, *Tetr.* 1. Serm. 1. p. 39, has indeed the name Cynoglosson; but it is a Synon. Limonii.

### S E C T. II.

It is anodyne and incrassating; and commended (internally and externally) for catarrhs, fluxes and hæmorrhages, inflammations, painful hard and malignant

lignant tumors, and phagedenic ulcers. The leaves agree with the root in virtues.

“*Officin.* Flores, folia, ac radix, sed raro. *Vires.* Refrigerat & siccat 2°; incrassat, lenit, obstruit. *Uſus* in sistendo fluxu alvi, in gonorrhœa & catarrhis incrassandis. Verùm quia in numero herbarum est, quæ narcosis virulentæ suspectæ sunt, rarissimè a practicis adhibetur. *Præp.* 1. Pilulæ “de Cynoglossò, *N.* somnum conciliant, narcoticæ sunt. 2. Unguentum.” *Schroder.*

1. As it comes near in character to buglossum and symphytum; so it is also viscous and sweetish, but more disagreeable than either; and is very fetid, and smells, as some think, soporiferously. In August I have observed it to smell much like spiritus cornu cervi; at other times more like dogs-piss. “The leaves stink very filthily, much like to the piss of dogs; wherefore the Dutchmen have called it hounds-piss, not hounds-tongue.” *Ger.* “It is full of a clammy juice, smelling somewhat strong, or of an evil scent, like as the leaves do, which some do call a soporiferous scent.” *Park.* And *J. B.* says much the same. “Odore est magis gravi quam sapore, qui dulcedinem nonnullam fatuam linguæ offert.” And below, “Radix odore est pene soporifero.” l. c. & p. 599. “Testatur & odor somnolentus, ut sic dicam & substantia mollis, mucosaque, frigidum & humidum esse, non sine tamen calore aliquo, quem arguit fœtor ille caninus, non secus ac in aliis narcoticis.” *Hoffman.* 212. “The bark of the root is a little bitter, saltish, styptic and viscous. It reddens (*assez*) the blue paper; and stinks like a dogs-kennel.” *T. H.* p. 74. “The whole plant has a fetid smell, like the urine or dung of mice.” *Miller, Bot.* 170. “Radix . . . odore gravi, aliquid fœtidi canis redolente, narcotico, sapore mucoso, qui dulcedinem nonnullam fatuam linguæ offert. . . Radicis cortex subamarus est, salus, stypticus, glutinosus.” *Geoff.* iii. 394-5. An infusion of the leaves in boiling water, after it had stood two days, is of a brownish colour, subviscid, and both disagreeable to taste and smell. Mixed with a solutio vitrioli it became brownish-black, seemed to ferment, or make a slight ebullition, and soon precipitated. It made no change on syrup of violets, but reddened a little the tinct. heliotropii. — 2. “Analyſi chymica ex foliorum Cynoglossi exsiccatorum lbv. prodierunt humorum lbiv. 3v. 5ij. gr. xlv; salis volatilis gr. lxxj; olei adiposi 3j. 5v. gr. xl. Massa relicta pendebat 3vj. gr. lxxiv; unde cinerum 3iij. gr. xlv, & inde salis fixi alcali 5v. gr. xlv. Jactura fuit 3ij. 3vj. gr. j.” *Geoff.* iii. 394: who adds, from *T.* unnamed, “Salem essentialem videtur obtinere ammoniacalem, multo phlegmate, terra & oleo fœtido temperatum.” *N. B.* From this analysis I can infer nothing, except that the leaves had been ill dried, if dried at all. — 3. Externally it is commended for mariscæ ani, strumæ, malignant tumors, and ulcers, &c. “Ulcus mammarum sanatum vidi facili hoc remedio; Cynoglossa in vini & aquæ ana cocta lavetur ulcus & imponantur folia.” *Ex Obs. Jer. Martis.* “Unguentum ex illius succo, cum melle & terebinthina, ad ulcera antiqua, maligna & fistulosa valde extollit Tragus: ut & in mariscis.” *R. H.* p. 490. Dr. *Mayern* commended the roots hung about the neck for the scrophulæ. Vide *H. Ox.* “Retulit mihi amicus quidam se novisse radices hæcæ suspensas circa collum pueruli cujusdam pauperculæ, cujus caput & linteamenta pediculis scate-

I

“bant.



“bant. Observatum pediculos quidem radicum. foetorem exosos, procul au-  
 “fugisse, & sedes mutasse, scrophulas obstinate restitisse; nec, quod ille au-  
 “diverit, iis sanandis medicamentum successisse, D. Hulse.” *R. H.* And, no  
 wonder! But all this favours of the narcotic. But—4. It has been found to  
 be narcotic internally taken. “Mulier quædam Oxoniensis, & maritus cum  
 “liberis, & quotquot erant istius familiæ, folia Cynoglossi (pro tenellis sym-  
 “phyti foliis collecta) cocta, liberè comedebant; et prandio mox omnes ægrè  
 “se habebant, et non multo post vomitus molestus insequabatur, deinde stu-  
 “pore et somno correpti sunt, nec post horas fere 40 penitus excitati; unus  
 autem mortuus est.” *H. Ox.* 3. 450. Mr. *Ray* does not allow it to be narco-  
 tic, because often successfully used in cataplasms and plaisters for ulcers: but  
 this rather makes against him. He adds, “Intus etiam tuto sumi posse ar-  
 guunt pilulæ de Cynoglossi.” But in gr. xxviii. of these pills there is only  
 Cynoglossi gr. ij; so not gr. j. in a dose. Besides, they contain as much of  
 opium and sem. hyoscyami as of Cynoglossum. Are not these narcotic? Hence,  
 however Cynoglossum incrassates on a double account, viz. both as viscid and  
 as narcotic, and may do service in rheums, hæmorrhages, fluxes, and even  
 the dysentery if rightly managed and dosed. But of what use it can be in the  
 scrophulæ inwardly taken I do not see, though thus it is commended in *R. H.*  
 “Quidam, Dioscoridem secuti, radicem Cynoglossi secure commendant, dosi,  
 “aut quantitate non assignata, quum tamen non magnam esse oportet.” *H. Ox.*  
*Vide N. Dispens.* p. 122.

## S E C T. III.

The dose is uncertain.—It is not used here: the pilulæ de Cynoglossi;  
 (vide *Alex.* §. v. c. de Tussi) which had a place in our Dispensatory, being  
 thrown out of the two last editions. They contained “Cynoglossi, seminis  
 “hyoscyami & opii aa gr. j. in pil. gr. xiv.” *Fere.*

“Datur ad ʒß, in decocto ad ʒj.” according to *Herman* and *Albinus* (*M.S.S.*)  
 “Radix ad ʒj. folia ad j. in aqua vel jusculis decocta utiliter præscribuntur in  
 “catarrhis, tussi, diarrhœis, dysenteriis et hæmorrhagiis. . . Pilulæ de Cyno-  
 “glossi præstantissimæ sunt ad catarrhos tenues sistendos, tusses ferinas sedan-  
 “das, epilepticos puerorum insultus compescendos, somnum conciliandum &  
 “omnis generis dolores placandos. A gr. iv. ad gr. x. exhibentur.” *Geoff.* iii.  
 395-6. I think pilul. ʒj. safer than radicis decoctæ ʒj. Pilul. dosis ad gr. xv.  
 according to *Salmon* and *Quincy*. But, “In sistendis catarrhis tenuibus . . .  
 “ne quidem mentionem illarum ferre possum,” says *Hoffman*, 212.

## C Y P E R U S.

## S E C T. I.

1. Cyperus, *Cyperus longus, offic.* *Cyperus odoratus* radice longa, sive  
*Cyperus officinarum*, *B. P.* 14. *T.* 527. *C. longus odoratus*, *B. Theat.* 216.  
*Park.* 146. *H. Ox.* 3. 237. *C. panicula sparsa speciosa*, *J. B.* 2. 501. *C. lon-*  
*gus*, *Ger.* 30. *R. H.* 1299. *Syn.* 425. Sweet Cyperus, or English Galingale.—

This

This has a long slender, creeping knotty root, of a dark-brown colour on the outside and whitish within, of a warm, aromatic, astringent taste, and fragrant smell.

It grows plentifully about Montpellier, and in other warm countries; also in Purbec island, yea and in the north of Scotland: "But we have it generally brought from Italy." *Miller Bot.* p. 171.

2. *Cyperus rotundus*, *offic.* — *Cyperus rotundus orientalis major*, *B. P.* 13. *Theat.* 208. *H. Ox.* 3. 236. *R. H.* 1239. *Cyperus Syriaca & Cretica*, rotundave, *J. B.* 2. 502. *C. rotundus Syriacus*, *Ger.* 31. *Cyperus rotundus, odoratus, Syriacus*, *Park.* 145. Round-rooted *Cyperus*. — The roots are of the size and figure of olives, rough and brown without, whitish within, of a warm bitterish aromatic and subastringent taste, and fragrant spicy smell: many of them generally hang together by slender strings.

It grows plentifully in the river Nile, lakes and fens of Egypt," *R. H.* "and is brought to us from Turkey." *Miller Bot.* 171. *Cyperus* is *κυπερος* in *Homer Il.* *φ.* v. 351; also in *Theophrastus l.* 4. c. 11. p. 453: In *Foesii Hippocrates* it is sometimes *κυπερος*, but commonly *κυπερος*: in *Dioscorides* *κυπερος*, who has two species of it; the first of which is commonly reckoned our *Cyperus rotundus*. Vide *l.* 1. c. 4. p. 6; and *Bod.* in *Theoph.* p. 465. It is also written sometimes *κυπερις*; all from *κυπαρος*, they say, *i. e.* pyxidula, aut vasculum pusillum, a radicem figurâ.

## S E C T. II.

They are aromatic, astringent, and diaphoretic roots; called stomachic and uterine; and commended in want of appetite, female weaknesses, colics, flatulencies, green-sickness, vertigoes, dropsies, &c. The long is most astringent; the round most aromatic.

"Utraque stomachica est & uterina; calfacit & siccatur 2. aperit. *Ufus præcip.* in urina ac mensibus ciendis, cruditate ventriculi consumenda, hydropes inchoato preservando, colica ac vertigine discutienda, ulceribus velicæ solidandis: masticata emendat oris fœtorem. Cocta in oleo, contusa & imposita renibus ac pectini urinam proritat." *Schroder.* 581.

For, being both aromatic and astringent, they strengthen the stomach and intestines very much, increase motion and promote the fluid secretions; and so may be of use internally in some obstructions of urine, as well as of the menses, and externally in cleansing ulcers. *Cyperus*, says *Alpinus*, is much used in Egypt. "Præcipue ad ulcera oris & pudendorum sananda, tum pulvis tum combustarum cinis, familiarissimum est remedium. Ex ipsis paratum decoctum vel pulvis, stomachum, cerebrum, pulmones, uterum, nervos, articulos, aliquibus diebus sumpta, plurimum calfacit, siccatur, roboratque naturalem colorem, &c." *De Pl. Ægypt.* c. 37. "Radix pulv. ad ʒj. cum spica lavendulæ, optime fœtum expellit, ut & secundinas." "Ex dictatis D. Hermannii." *R. H.* This is not in the *Cynosura*.

"*Cyperus rotundus orientalis* *offic.* . . crescit etiam copiose in Gallo-provincia, & pluribus in locis in agro Parisiensi. . . Cyperi radices sale volatili oleoso aromatico, viscidis partibus & terrestribus involuto, videntur con-

"flere.



“ stare.” *Geoff.* ii. 49, 50. Here are principles without any analysis, without any regard even to the taste. It is not in *T. Hist.* Is there not an *error speciei* in *Geoffroy*?

## S E C T. III.

Either may be given to ʒj, in infusion to ʒij. The round is in the troch. cyphæos pro mithridatio; but because amongst the simples we have only the *Cyperus longus*, it is allowed to be taken for the rotundus. Both are thrown out of the *London M. M.* and consequently out of the mithridatium.

“ Dantur in substantia ad ʒj; in infuso a ʒij. ad ʒj.” *Geoff.* ii. p. 50.  
 “ Semen Cyperi longi, cum oriza, cui sæpe permistum in Italia occurrit, co-  
 mestum, inebriat ut lolium, teste Fallopio.” *Ibidem.*

## D E N S L E O N I S.

## S E C T. I.

Dens Leonis, Taraxacum, Corona Monachi, *offic.* Dens Leonis latiore folio, *B. P.* 126. *T.* 468. Dens Leonis, *Dod.* 636. *Ger.* 290. *R. H.* 244. *Syn.* 170. D. Leonis vulgaris, *Park.* 780. *H. Ox.* 3. 74. Hedypnois, sive Dens Leonis Fuchsi, *J. B.* 2. 1035. Leontodon calyce inferne reflexo, *F. Lap.* 228. *H. Cliff.* 586. Dandelyon, or Dandelion, Pifs-a-bed.—This has a long thick root, brown without, white within, of a bitter taste and no smell.

It is called Dens Leonis, from the jagged leaves. Taraxacum is said to be an Arabian corruption of *τροξιμον*, edule, also one of the names of Seris. How the antients called Dens Leonis I know not: but the moderns have given it a variety of names, as Hieracium, Heliotropium, Flos Martii, Lactuca pratensis, Lactuca viarum, Radix ocularia, Radix urinaria, Rostrum porcinum, Ambubeia, Apostematica, and many more. Vide *J. B.* It is common every where, flowering early in the spring, and all summer over; and plentifully propagating itself by its light downy seed.

## S E C T. II.

It has the virtues of succory, and is used the same way; some indeed reckon it more diuretic. The leaves are of the same nature with the root.

“ Refrigerat & siccat 2. saporis amari, abstergit, aperit, epaticum est, cum  
 “ endivia conveniens, qua tamen potentius operatur. *Ufus præcip.* in febribus  
 “ putridis inveteratis, &c. Extrinsecus maculas abigit oculorum, (lac ex dif-  
 “ rupta caule, ter quotidie oculis inditum) vulnera ac ulcera abstergit, &c.  
*Præp.* Aqua stillatitia ex planta cum radice, foliis ac floribus, collecta initio  
 “ Maii.” *Schrod.* p. 691. who observes its use as an amulet.

It abounds with a soft, yet bitter, milky proper juice, and comes near succory every way. “ Who so is macilent drawing towards a consumption, or  
 “ ready to fall into a cachexy, by the use hereof for some time together, shall  
 “ find

“ find a wonderful help.” *Park.* l. c. “ It is boiled in posset drink, and frequently used by the vulgar, in all kinds of fevers. The leaves beaten to a cataplasm are applied to the wrists in the same distempers.” *Miller. Bot.* p. 175.

The young leaves blanched are much coveted for a spring salad, by many, especially the French; who on that account cultivate it in their gardens. “ In agro Parisiensi frequens ubique nascitur, & in hortis colitur.” *Geoff.* iii. 399. “ The leaves are very bitter, and redden a little the blue paper: the roots redden it much more; they are bitter, styptic, and deterfive. The salt of this plant resembles much what Muller calls terra foliata tartari. . . The extract of the plant is given from ʒß. to ʒjß.” *T. Hist.* p. 192. Here no analysis is given: but Mr. *Geoffroy* gives two, viz. Foliorum Taraxaci floridi, & radicum recentium, iii. p. 399. “ Analyſi chimica ex Taraxaci floridi foliorum lbv. prodierunt humorum lbiv. ʒv. ʒv. gr. xvij; olei fluidi ʒj. ʒij. gr. xxiv. Carbonis fuerunt ʒvij, unde cinerum ʒij. ʒvij, & inde salis fixi salſi & aliquantisper alcali ʒij. gr. xxxvj. (ergo terræ ʒij. ʒij. gr. xxxvi); & Jaçtura fuit ʒij. gr. xxx.” “ Ex radicum Taraxaci recentium lbv. prodierunt humorum lbij. ʒx. ʒiv. gr. xxxij; olei spissi ʒj. ʒij. gr. lxij. Carbo pendebat ʒix. ʒvj. gr. ix; unde cinerum ʒij. ʒiv. gr. vij. & inde salis fixi salſi ʒj. gr. xxxix. (ergo terræ ʒij. ʒij. gr. xl). Jaçtura fuit ʒx. ʒij. gr. xxxix.” “ Sal essentialis hujus plantæ, ad salem mirabilem Glauberi accedit; cum ammoniacali sale & oleo confociatur. Sal acidus in radicibus uberior est, & magis evolutus, quam in foliis.” *Geoff.* l. c. Mere conjectures! But can there be such a difference in the quantity of ashes, fixed salt, earth and Jaçtura? “ Infusum vel decoctum ad ʒiv. vel vj. Succus recentior expressus & defæcatus ad ʒij. iv<sup>te</sup> præscribitur. Extractum ad ʒj.” *Geoff.* iii. p. 400, 1. Vide Succus attemperans, in *Full. Pharm. extemp.*

## DICTAMNUS ALBUS.

### S E C T. I.

Dictamnus albus, Fraxinella, *offic.* Dictamnus albus vulgò, sive Fraxinella, *B. P.* 222. Fraxinella, *Clus. H.* 59. *Dod.* 348. *Ger.* 1245. *Park. Par.* 333. *H. Ox.* 3. 456. *T.* 430. Fraxinella, officinis Dictamnus, *J. B.* 3. 494. *R. H.* 698. Dictamnus, *H. Cliff.* 161. Fraxinella, or Bastard Dittany. — The roots are white, long and pretty thick, issuing from a common spreading head; containing within a thick spongy bark a woody yellowish pith, which is sometimes separated and the bark found by itself in quills; of a warm bitterish bituminous taste; and strong rank smell when recent.

It grows in several places of Germany, France, Italy, &c. In our gardens it flowers in July, and the seed is ripe in autumn: though (vide *H. Ox.*) sowed in the spring it does not grow the first year. Some think it the Natrix *Plinii*, l. 27. c. 12. p. 678. others the Fragium primum *Dioscoridis*, l. 4. c. 49. p. 261: but these are conjectures only. It is called Fraxinella from its leaves like those of the ash-tree: and Dictamnus from its virtues, or smell. Vide *Dale*, p. 141. & p. 177. & *J. B.* 3. 495, “ Fraxinella solum cis paucos an-  
Vol. I. K k k “ nos



"nos in officinis cœpit inclarescere." *Geoff.* 2. 51. It was however one of the ingredients *Pil. Aleophangin. Val. Cordi*, in the first public Dispensatory, edit. anno 1542.

## S E C T. II.

It is bitterish, aromatic, diuretic, and menagogue; called alexipharmic, cephalic, antispasmodic, anthelmintic, uterine; and commended for worms, epilepsies, nephritic colics, hard labour, female obstructions, malignant diseases, venomous bites, &c.

"Est cordialis, alexipharmaca, uterina, cephalica, amara; calf. & siccata, aperit, vermes necat. *Ufus præcip.* in morbis malignis, in epilepsia, aliis affectibus capitis, in obstructione uteri, &c. Extrahere quoque dicitur spicula cuti infixæ." *Schrod.* p. 593.

1. All the plant has a strong resinous, or bituminous, or rank smell (*hircum olentem*, as different authors express it :) it is also hot and bitter, though not intensely so; yet the impression on the tongue is pretty lasting. "Radix amara est, & dum recens hircum olet." *Matthiol.* 523. "Radicum cortices in officinis sunt sapore amaricante. . . Siliquæ & flores contactu pruritus faciunt, & in calidioribus regionibus, cutem exulcerant." *J. B.* "Saporis amari, acris, odoris gravis, ex aromatico hircinum quid redolens, Dictamni Cretici similis; si recentior est dum grave bituminosum ad peucedanum nonnihil accedentem, aromaticumque spirat odorem." *Albin. M. S.* "Saporis amariusculi, odoris nullius." *Dale*, p. 177. "Sapore subamaro, cum obscura acredine, odore dum recens est fragranti, gravi . . . summi caules, & florum calyces, innumeris scatent vesiculis, quæ ope microscopii, facile observari possunt, oleo essentiali turgidis: quæ quidem sulphureos halitus, æstivis diebus, tanta copia exhalant, ut candela plantæ pedi admota, ingens flamma derepente accendatur, & totam plantam lambat." *Geoff.* ii. p. 51, 52: so that it contains a kind of turpentine, or perhaps a bituminous volatile essential oil, like petroleum. — 2. "Menses, secundas, & emortuum fœtum ducat, tum supposita, aut cum pulegio suffita. Siliquæ & flores tactu pruritus faciunt, &c." (as from *J. B.* supra) *Matthiol.* l. c. "Oleum florum in discutiendis doloribus efficax est. Aquam destillatam pro cosmetica habent Romanæ mulieres, & utuntur in inflammationibus oculorum." *Hoffman:* p. 26. — 3. Internally it is commended in the pestilence. "Putredini egregie resistit, & inde effectus in peste est," (*Hoffman.* l. c.) Flatulencies, gonorrhœas, internal wounds, &c. "Ad multa utilis est." *Matthiolus.* "Apu'd Agyptas celebris est in lumbricis pellendis, in epilepsia; credo cum ab illis pendent." *Hoffman.* l. c.

Mr. *Chemel*, in his History of useful Plants (*Paris* 1715, 2 vol. in 8vo.) relates two wonderful cures performed by one Mr. Poulet *un Herboriste de Sormaise près de Noyen*: the one was on a peasant troubled with excessive pains in his guts, and the fumes canina, who having taken for some days a syrup made of the infusion of *Fraxinella* root, got rid of all his complaints, and passed a worm five or six feet long: The other was in a peasant also troubled with syncope, &c. who by using a ptisan of this root for fifteen days, and taking a vomit after it, threw up (*deux crapaux*) two toads, the one corrupted, the other

other as big as a walnut and alive, with much blood, and was perfectly cured. Vide *Chomel*. p. 307 & 308. *Fides sit penes auctorem*. The first is not extraordinary: the last incredible; and probably a trick.

“Ex lbv. radicum Fraxinellæ, recens e terra extractarum, ineunte vere, “analyfi chymica, prodierunt phlegmatis plantæ odorem & saporem accurate “referentis, ac proinde oleo effentiali subtilissimo fœti lbj. ʒiv; phlegmatis “acidi, adhuc odorati lbj. circiter; olei fœtidi ʒiij. ʒiij; falis alcali fixi ʒv. “remanentibus terræ damnatæ ʒiib.” *Geoff.* ii. 52. The sum here is lbiv. ʒij. ʒiv. gr. xx. so that there were lost distillando & calcinando ʒxij. ʒiij. gr. lii. *N.* The stile here also is different from the common, and much shorter.

## S E C T. III.

It may be given to ʒj. or ʒij: in infusion to ʒiv. It is used in the aqua pæoniæ composita and pulvis antiepilepticus, de gutteta dictus, tinctura cephalica utraque.

“Dosis a ʒib. ad ʒij. in substantia, & in infusione ad ʒj.” *Geoff.* ii. The Augustans (*Ph. August.* in folio, p. 168.) and French take it for the Farina Orob, as an ingredient in the trochisci scillitici.

## D O R O N I C U M.

## S E C T. I.

Doronicum, Doronicum Romanum *offic.* Doronicum radice scorpii, *B. P.* 184. *T.* 487. Aconitum pardalianches primum, *Dod.* 437. Doronicum latifolium, *Clus. H.* 2. 16. D. majus officinarum, *Ger.* 759. *H. Ox.* 3. 127. D. vulgaris, *Park.* 319. *R. H.* 274. Common or broad-leaved Leopardsbane.—The roots whereof are tuberosæ, jointed and tapering, so as somewhat to resemble scorpions, of a yellowish colour without, white within, sweetish and a little aromatic to the taste, and smelling very much like Cummin-seed.

This, though I find it neither in *J. B.* nor the *H. Cliff.* is the officinal species according to Hoffman, Dale (who mentions three other Doronicums) Pharmacopœam Londinens. veterem, *Ph. Leidensem*, Miller’s Botanicum, Geoffroy, &c. also the Doronicum *Gesn. Hort.* in *B. P.* and *Lin. M. M.* p. 138. But it is a variety only of D. maximum, foliis caulem amplexantibus, *B. P.* 184. according to his *Sp. Pl.* p. 885. *Schroder*’s Doronicum is the Doronicum radice dulci, *B. P.* 184. *T.* 487. *R. H.* 275. D. folio subrotundo serrato, *J. B.* 3. 17. *H. Ox.* 3. 127. D. tertium, Austriacum secundum, *Clus. H.* 2. 17. D. radice repente, *Ger.* 760. D. brachiata radice, *Park.* 320. Creeping Leopardsbane. “Aconitum pardalianches Theophrasti, *Matthiol.*” *B. P.*—Neither can I find this in *R. S.* or *H. Cliff.* Varietas est D. rad. scorpii brachiata, *B. P. Sp. Pl.* p. 884.

The first grows plentifully in the mountains about Geneva; the last in Austria and Stiria. “Floret (D. radice dulci *B. P.*) Julii initio, aut etiam “serius; in hortos vero translatus, ubi non diu permanet, Maio plerumque.”



*R. H.* 275. "Vocabulum factum est ex Arabico *Doronigi Serapionis*, Simpl. c. 325. vel *Durungi Avicennæ* 22. c. 210. (in mine it is c. 209. p. 122.) "Horum verba si afferam, nihil agam: Tam enim non conveniunt cum *Doronic* offic. quam non convenit album cum nigro," *Hoffman*. p. 88. as it is uncertain whether our *Doronicum* is the *Aconitum pardalianches antiquorum*. "Aconiton aliqui *Pardalianches*, alii *Cammoron* . . . folia habet terna quaternave, ceu *Cyclamini* aut *Cucumeris*, minora tamen, ac leniter aspera, caulem dodrantalem: radix scorpii caudem æmulatur, & alabastris modo splendet. Hujus, ut aiunt, radice admota, scorpius quasi resolutus, torpescit; rursumque appposito helleboro excitatur. Miscetur & oculorum medicamentis, doloris levandi vi præditis. Enecat vero pantheras, fues, lupos, ac ferarum genus omne, carniū frustulis inditum & appositum." *Dioscorid.* l. 4. c. 77. p. 275. *Is this Doronicum?*

## S E C T. II.

It is aromatic, diaphoretic and narcotic. Some recommend it in vertigoes, epilepsies, poisons, bites and stings of venomous creatures, &c. others condemn it as a poison: and there being reasons sufficient to suspect it, at least, of virulency, it ought cautiously to be used, if not expelled the shops.

"Accedit ad calfac. & ficc. gr. 3. discutit, alexipharmaca est. *Usus præcipuus* in vertigine, uteri inflatione, palpitatione cordis, venenosis morbis ac moribus (nimirum signaturam scorpionis habet) *N.* sunt qui aconitum *pardalianches* esse volunt, adeoque noxium (ut *Matthiolus*) cui tamen moderni minime subscribunt." *Schroder.* p. 583. *N. B.* These are the virtues of the *Durungi Avicennæ*, who substituted for it *Zerumbet* and *Caryophylli*.

"Alexapharmaca esse affirmant *Pena*, *Lobelius*, *Camerarius*, *Renodæus*, *F. Hoffmannus*, *Collegia Bononiense*, *Amstelodamense*, *Londinense*, *Lugdunense*, *Antverpiense*, *Cordus* in *Dispensatorio Norimburgensi*, *Schroderus*, *Charas*; contra noxium declarant *Maranta*, *Aldrovandus*, *Cortufus*, *J. B. Matthiolus*, *C. Hoffmannus*, *Collegium Florentinum*, & *Ultrajectinum*." *Geoff.* ii. 55.

1. Although it discovers no virulency to the taste or smell, being neither acrid nor bitter, but pretty agreeable to both the senses; and is said to be coveted and eaten by some animals; yet it is found in the heart of a stone formed in the maw of the *rupicarpa*, called by *C. B.* *Bezoar Germanicum*, so seems not to be easily digestible by these animals. Vide *Clus. Park.* l. c. And all are now agreed that it poisons dogs. — 2. It is commended outwardly applied for pains and inflammations of the eyes, &c. and — 3. *Gesner* himself at last found the bad effects of it on himself, as appears by one of his epistles. "Ego, (says he) *Doronici* herbam sæpe in montibus copiosè edi, magna cum voluptate, nam & aromatica est & suaviter acris herba & tenera, succoque abundat, & sine ulla noxa secuta. Radices quoque recentes, ficcas, integras, melle conditas, tritas in pollinem, sæpe ingessi; & hodie ut manifestissime *Matthioli* & aliorum sententiam redarguerem, ex aqua calida ʒij. radicū contritarum hausi; nec inde ullam prorsus in me mutationem sensi. *Ægrotis* quidem sæpe illam & per se, & cum aliis mixtam, utilissimè con-

“fului, in vertigine & epilepsia. Misceo interdum gentianam, visci scobem, & astrantiam. Sic mire prodesse epilepticis, si continuetur usus remedii. Canibus autem lethiferum esse scio: non solum si  $\zeta$ iv, sed etiam si unius pondere sumant. Plura alia nunc omitto, quibus ostendere liquidò possum, nec Doronicum nostrum, nec aconitum, ullo modo esse venenatum homini. Scribo hæc hora octava, postquam  $\zeta$ ij. ejus sumpsi, & optimè habeo, Dei gratia.” *Epist. ad Adolph. Occonem, data Tiguri 18 Aprilis 1565. l. 2. p. 74.* But observe what follows. “Doronici  $\zeta$ iv. cani datas cum occidere scribit Matthiolus. Ego uni dari jussi, & periisse audi. Quia tamen minierem me sæpe in montibus herbam illam aromaticam cum voluptate edisse, & inde recreatum esse. Sæpe etiam radices aliquot nulla molestia, volui nuper  $\zeta$ ij. radicum illarum aridarum ex aqua calida sumere, unde nihil incommodi sensi horis aliquot, quo tempore etiam id ipsum ad te scripsi. Horis vero octo elapsis, ventrem & stomachum inflari sensi, & circa ventriculi os imbecillatam quandam, & totum corpus infirmius, ita fere, ut alias semel atque iterum, ex nimio aquæ frigidæ potu perceperam (inde curatus vini alicujus generosi potu per accidens, nam commune fastiebam). Sic biduo duravit in me hic affectus, & cum non videretur sponte discessurus, ingressus in aquæ calidæ solum, curatus sum. Hæc de Doronico te scire volui, ei vim nullam malignam, aut homini venenosam inesse puto; sed radices nimium humiditas esse puto (ut quæ nunquam fere exsiccentur totæ, utcunque longissimo tempore servatæ) & flatibus excitatis, ventriculum offendere, nec facile ex eo descendere.” *Id. Ibid. 28vo Septembris 1565.* His following letter is dated 5to Novembris; and there is one to Zwingerus 26to Novembris; and another 30mo Novembris that same year; and Gesnerus died the 13th Decembris (*Sequier B. B. or the 16th following Lin. B. B.*) of the pestilence, and not of this root, as Costæus alledges. Vide *C. Hoffman. p. 89.* who concludes thus, “Atque sine periculo utimur electuarium e gemmis, &c. Non est satis. Nam & opio impune utuntur Turcæ. Sed & diversitas est. Opium corrigitur in theriaca & aliis opiatiss, quia inter frigida est. Aconitum est septicum.. Sed non sit. Vis temere periclitati? Qua de re dubitas ne feceris, dicebat aliquando ad me ampliff. D. Georgius Volcamerus.”

“I myself have often eaten of it (the Doronicum) and that in a pretty quantity, without the least offence.” *Johnson on Ger. p. 763.* “Doronicum ab aliquibus toxicis adnumeratum, proque deleterio passim habitum, & proclamatum, a medicamentorum compositionibus aliquantisper exulare coactum fuit. Verum tamen doctissimorum, & in re medica versatissimorum virorum gravia testimonia, quinimo & usus ipse, Doronici ipsi vulgaris innocentiam detexit: quo argumento collegium nostrum permotum, quod pro eo zedoariam quondam substituebat, Doronicum hoc, tanquam postliminio revocatum, in medicum usum readsumpsit.” *Pharm. August. (edit. 1684. in folio) p. 9.* “Venatores pastoresque montani, secundum & tertium (i. e. Doronicum radice dulci *B. P.*) genus *Gemswurts*, hoc est rupicaprarum radicem appellant, & adversus vertiginem non minus commendant, quam auriculæ ursi flavo flore radicem, viribusque firmandis adprimè utilem esse ferunt.” *Clus. Hist. 2. p. 19.* Ego, loco potus ordinarii per aliquot menses, dedi virgini epilepticæ, Doronici decoctam, & curate est.” *Albin. M. S.*

Upon



Upon the whole, though there is sufficient reason to suspect this root of virulency, (and therefore it ought cautiously to be used), yet if it be found successful in any disease, *e. g.* the epilepsy, after more safe remedies have failed, the use of it ought not to be condemned; virulent medicines being often the most efficacious. There is another species of the Doronicum, in great request with some, viz.

*Arnica, offic. Schroder, 538. Dale 88. Doronicum plantaginis folio alterum, B. P. 185. T. 487. H. Ox. 3. 127. D. Germanicum, foliis semper ex adverso nascentibus, villosis, J. B. 3. 19. Alisma Matthioli, seu Plantago montana, J. B. 3. 20. Damasonium primum Dioscoridis, Tab. Ic. 738. Calendula Alpina, Ger. 740. Doronicum Germanicum, Park. 320. R. H. 276. D. foliis oblongo-ovalibus. F. Lapp. p. 240. German Leopards-bane.—The herb and flowers are used. It is the Arnica lapsorum Panacea Fekri, Ephem. Nat. Curios. An. 9. & 10. “Sudorifica est, diuretica, & interdum vomitoria. Contra grumofum & coagulatum sanguinem cum cerevisiâ cocta, vel infusa in vino, aut in aquâ idoneâ exhibetur. Dosis a pugilla j. ad ij. pro robustis. (See Schroder. l. c.) Statim atque assumpta est, inquit Fehrius, tanto impetu ad locum affectum fertur, sanguinisque grumosi perrumpit latebras, ut magnos ibidem cruciatus, & summum quandoque respirandi difficultatem, suscitasse observatum sit, præsertim a nimia ejusdem dosi, & ubi malum inveteratum est, & contumax; quæ tamen omnia brevi, vel spontaneo vomitu, vel abundanti urinæ profluvio, vel etiam venæsectione, si necessitas urgeat, sedantur, cum exoptatâ corporis incolumitate, & virium restitutione. Ubi autem nulla manifesta læsio, ibi quoque nullus ab hoc assumpto medicamento dolor. Radix sapore est amaro, acri, aromatico, cum odore fragrante; diuretica quoque est, & menses ciet in vino cocta. Flores lixivio incoquantur, ad capitis dolorem, et ad flavum colorem capillis conciliandum. Pulvis quoque ptarmicus ex floribus, foliis et radice paratur præstantissimus.” Geoff. ii. 57. Do not these effects also, so far as they are credible, point out a malignant quality in this herb.*

### S E C T. III.

The dose of the Doronicum is said to be ʒj. in substance, and ʒj. in decoction, by *Herman* and *Albinus* in *M. S.* I cannot warrant it: I would not exceed ʒj. at first, even in epileptic cases.

There are three Doronicums in the *Cod. Med.* (edit. 1748); but none of them in any of the compositions.

## L E C T U R E XLI.

### E B U L U S, & S A M B U C U S.

#### S E C T. I.

1. **E** B U L U S, Chamæactæ, Sambucus humilis, *offic.* Sambucus humilis five Ebulus, *B. P.* 456. *T.* 606. *R. H.* 1611. *Syn.* 461. Ebulus, *Dod.* 381. E. five Sambucus humilis, *Ger.* 1426. *Park.* 308. E. five Sambucus

bucus herbacea, *J. B.* 1. 456. *Sambucus* caule annuo simplici, *H. Cliff.* 110. Dwarf-Elder, or Danewort.—This has a long, spreading and whitish root, about the thickness of a finger; of a nauseous sweetish taste at first, then bitterish and subacid; and of a heavy, fetid (or soporiferous) smell.

It grows by road-sides, in church-yards, &c. in Britain, France, Germany, Italy, flowering in June. "*Usu.* Cortex, folia, baccæ." *Dale* 319. "*Officin.* Nat. Flores, folia, cortex interior, semen et baccæ." *Schrader.* 584. It has no cortex properly, but only a cuticula or skin.

2. *Sambucus*, *Acte*, *offic.* *Sambucus* fructu in umbella nigro, *B. P.* 456. *T.* 606. *Sambucus* vulgaris, *J. B.* 1. 544. *Park.* 208. *R. H.* 1609. *Sambucus*, *Dod.* 845. *Ger.* 1422. *R. Syn.* 461. *S. caule perenni ramoso*, *H. Cliff.* p. 109. Common Elder, or Boor-tree.—It is very common almost every where in this country, flowering in May. "*Usu.* Cortex, folia, Gemmæ, flores & baccæ." *Dale.* "*Officin.* Flores, baccæ, liber, spongia, turiones." *Schrod.* 670. *Sambucus*, as some say, comes à *Sambuca*, a musical instrument, invented by *Sambux*. Vide *Bod. in Theophrast.* p. 210. The *Acte* or *Sambucus* is copiously described by *Theophrastus Hist.* l. 3. c. 13. p. 205. and not ill by *Dioscorides*, l. 4. c. 174. p. 313; as well as the *Chamæacte*, c. 175. p. 314. There is a book by *Martinus Blochwitzius, Oschaliensis*, called *Anatomia Sambuci, quæ non solum Sambucum & hujusdem medicamenta singularia delineat; verum quoque plurimorum affectuum, ex una fere sola Sambuco, curationes breves, rarioribus exemplis, historiis & medicamentis specificis non paucis, illustratas exhibet: Lipsiæ* 1613. in 12mo. "*Aliquando edit. fuit Londini apud Joan. Field, 1650; sed fraude bibliopolæ, qui titulum mutavit.*" *Segueir. Bib. Botan.* p. 230.

## S E C T. II.

Elder is bitterish, aromatic, detergent, emollient, diaphoretic, diuretic, purgative, anodyne, spasmodic and uterine; commended much internally in dropsies and obstructions of the viscera, and externally for pains, inflammations, burnings, œdematous swellings, and strumous tumors, and even the gout itself. And all the parts of the *Ebulus* and *Sambucus* partake of these virtues.

"*Ebuli flores calfac. & sicc. discutunt, emolliunt, resolvunt, sudores movent, ut Sambuci flores, folia eadem vi pollent, et imprimis ad podagricos dolores sopiendos, tumoresque aquosos discutiendos, adeoque et herniæ aquosæ conveniunt. Cortex interior, maxime radices (præterquam quod aquosos et serosos humores totius corporis per alvum educat.) calf. et sicc. discutit, emollit. Usus præcip. ut florum, in inflammationibus, erysipelate, & similibus. Præp. Aqua stillat. spiritus, rob ebulinum, (aquas blandè detrahit, sudoresque movet.) Tinctura granorum specificum est, contra hydropem, cachexiam, uteri strangulatum.*" *Schrod.* p. 584. "*Ebuli cortices (medii et potissimum radices) et seminula vim habent educendi aquam; conferunt igitur in hydrope, arthritide, cæterisque morbis a sero natis.*" *Idem.* p. 761.

"*Sambucus integra calfacit et siccatur, resolvit, hydropicos juvat. Flores discutunt, insuper emolliunt, resolvunt, sudoriferi ac anodynii sunt. Usus præcip.*



"*præcip.* intrinsecus in erysipellate præcavendo, & abigendo, quartana curanda. Extrinsecus in colica, erysipellate, combustione, &c. impositi. Baccæ sudoriferæ itidem sunt, ac alexipharmacæ. Liber educit serofos humores. Extrinsecus easdem vires habet, quas flores. Turiones et gemmæ adhibentur in acetariis, alvumque movent, et nonnunquam etiam vomitum, præcipue si sursum decrepantur. Idem facit et pulvis. *Præp.* E floribus, aqua, spiritus, vinum, oleum infusum et stillatitium. E. baccis Rob Sambuci; tinctura, spiritus, oleum; Tragea granorum Actes, Specificum est arcanum adversus dysenteriam." *Schrod.* p. 670. This Tragea was *Lady Mary Douglass's* specific.

1. All the usual parts of these plants have the same nauseously sweetish and bitter taste, and smell strongly of the garden nightshade: the pulp of the berries is the sweetest, yet it is nauseous and cathartic. "*Radix Ebuli* saporis est amaricantis, subacris et nauseosi. Flores odorati, sed esu vix ferendi." *Geoff.* iii. p. 415. — 2. They give no signs of an acid, but appear to be saponaceous solvents, as well as nauseous relaxing substances, yet somewhat stimulating. — 3. Externally used they are anodyne, emollient and discutient. An ointment of the tops and any animal grease is inferior to none for burns. — 4. Internally used they evacuate by sweat, urine, stool, or vomit, according to the dose and regimen. The liber and grana actes are reckoned the strongest; as is also the radix chamæactes. Are its berries more bitter than the leaves? Vide *T. Hist.* p. 530. They are said to be weakened by drying or decocting. Vide *J. B.* and *Fernelius* 256, and *Lobel.* p. 589. Hence these plants (for "*Eadem utrique vis et usus, exsiccans nimirum et aquas alvo detrahens: at stomachum offendunt,*" *Dioscorid.* l. c. from whom *Schroder* takes most of their virtues,) seem to contain an attenuating, emollient and cathartic juice, softened by an anodyne, and perhaps soporiferous quality. — 5. An infusion fol. Sambuci in boiling water, after two days maceration, was of a yellow colour, a nauseous subacid, (and though not excessively, yet of a lasting) bitter taste, and smelled a little of the plant; it turned syr. violarum greenish, and gave a greenish cast to the tinct. heliotropii, as if a little of an alkali had been dropt into it. Oleum tartari made its smell somewhat urinous; and with sol. vitrioli it became of a dark green colour, and opaque, and then black, but precipitated slowly. "*Manipula iij corticis interioris Sambuci, in lbij aquæ et lactis simul mist. ad lbj incoquantur. Decocti hujus altera medietas mane, altera sero quotidie adsumatur, donec æger convalescat. Hoc remedium et vomitionem ciet et catharsin, pariter ac crocus metallorum, ac proinde eodem modo hydropem depellit, non vi aliqua specifica: quocirca si neutram horum operationem præstet, vel si mediocriter ac parcè nihilum prodest quidem ubi vero alterutrum producit efficaciter, maxime vero si utramque, mire ad hunc morbum debellandum confert.*" *Sydenham de Hydropæ,* p. 496. "*Miror quendam e nuperis scriptoribus nostris, specificam virtutem ad hydropem Sambuco denegasse, contra omnium sæculorum fidem et experientiam.*" *Lister de Hydropæ,* p. 2.

"*Analyti chymica ex foliorum et summitatum Ebuli recentium lbv. prodierunt humorum lbij. 3xj. 3iv. gr. lx; olei 3j. 3iv. gr. xxiv. Carbonis fuerunt 3vj. 3iv. gr. xxxvj; unde cinerum 3ij. 3v. & inde salis fixi leviter alcali 3iij. gr. ij. (ergo terræ 3ij. 3j. gr. lxx.) Jactura fuit 3xij. 3ij. gr. xxiv.*"

*Geoff.* iii.

*Geoff.* iii. p. 416. “Baccarum maturarum recentium lbv. præbuerunt humo-  
 “rum lbj. 3xij. 3iv. gr. xxx; olei 3xiv. 3iv. gr. xxxvj. Carbonis fuerunt  
 “lbj. 3ix. 3vij. gr. xxxvj; unde cinerum 3iij. 3iij, & inde ſalis ſalfi talcoſi 3j.  
 “gr. xxx. (ergo terræ 3iij. 3j. gr. xlij.); & Jaſtura fuit 3x. 3vij. gr. xlij.”  
*Ibid.* In theſe analyſes it is obſerved, that the firſt humoris 3xx. ex fol. &  
 ſummit. were only obſcure acidæ; but all were ſubacid or acid as well as uri-  
 noſi that came from the fruit, which yielded much oil; and that the Jaſtura  
 was very large in both. “Folia Ebuli amaricantia ſunt, baccarum vero ma-  
 “gis intenſus eſt amaror, cum quadam aſtriſtione: chartam cæruleam earum  
 “ſuccus non mutat (from *T. H.* unnamed) ſale eſſentiali ammoniacali cum  
 “oleo copioſo, baccæ præſertim donantur tum tenui tum craſſo.” *Geoff.* iii.  
 p. 417.

“The leaves of Elder have at firſt an herbaceous ſaltish taſte, then are bit-  
 “ter; the fruit is ſweetiſh and reddens *beaucoup plus vivement* the blue than  
 “the white paper. By a chymical analyſis the leaves, beſides ſeveral acid and  
 “alcaline liquors, give ſome volatile concrete ſalt; much oil and much earth;  
 “ſo it is probable that this plant acts by a ſal ammoniac, more loaded (*chargé*)  
 “with acid than the common, and united to much fetid oil and earth. The  
 “ſalt in the fruit comes nearer to alum than to ſal ammoniac; little urinous  
 “ſpirit is drawn from them, but much acid, oil and earth.” *T. H.* p. 357.  
 So that the Sambucus yields volatile ſalt, though the Ebulus yields none.

“Sambucus (ακτιη) alvum potius quam urinam movet.” *Hippocrat. de Diæta*,  
 l. 1. p. 360. l. 10. “Quod ſi alvus non ſubducatur, foliorum Sambuci ſuc-  
 “cum ſorbeat.” *Hipp. de Morbis*, l. 2. p. 468. l. 3. and in ſeveral places he  
 uſes the ſolia, ſolia tenerrima & fructus.

### S E C T. III.

The root of the Ebuli may be given in infuſion to 3ij: the inner bark of  
 the Sambucus in infuſion alſo to 3j: the juice of either, turionum vel gemina-  
 rum ad 3ij: the ſeeds in emulſion to 3j. The aqua ſorum Sambuci, Rob  
 Sambuci, acetum, & unguentum Sambucinum are the only ſhop medicines  
 here: but elſewhere they prepare a conſerva, ſyrupus ſorum, extractum, vi-  
 num, ſpiritus, ſyrupus, oleum, fructuum, &c.

“Succus e radice Ebuli, vel e mediano ſtipitis cortice, expreſſus exhibetur  
 “ad 3j. Cortex in vino maceratur vel decoquitur ab 3ß. ad 3ij. Semen in  
 “pulvere præſcribitur ad 3j. Seminum Ebuli 3ß. in vini albi 3vj. macera-  
 “tur per noctem, & colatura hydropicis propinatur; vel ex eorum 3vj. emul-  
 “ſio conficitur. Rob ab 3ß. ad 3j. exhibetur. Aqua ſtillatitia radicum Ebuli  
 “commendatur a Duval in doloribus, inflammationibus, & obſtructionibus  
 “lienis: propinatur ad 3iv. per 10 aut 12 dies mane, jejuno ventriculo.”  
*Geoff.* iii. p. 418.

“Doſis Ebuli ſeminis eſt 3j. 3ij. 3j: ſucci 3iv. 3v. 3vj. (Why not 3ß. 3j.  
 “3ß?) Corticis 3j. 3iß. 3ij.” Vide Doſes Simplicium in *Bates Ph.* “Sam-  
 “buci turionum pulveris 3j. 3ij. *Ibid.* “Ebuli cortex & radix ordinariè  
 “præſcribuntur in decoctis; doſis eſt ad 3ß. Semina contuſa debent infundi  
 “in menſtruo ſpirituoso, & eorum doſis eſt ad 3j. Ex illis fit oleum per  
 Vol. I. L 11 “expref-



“ expressionem, quod valide operatur per vomitum, secessum, & diuresim; dosis est ad ℥j.” *Nucl. Belg.* 104. “ Sambuci cortex datur ad ℥j. Folia vero ad ℥℔. ordinariè in decocto, vel eorum succus exhibetur. Ejus flores sunt odoris aromatici satis grati: turiones et folia sunt saporis subamari, magis nauseabundi quam flores; cortex secundarius paulo gravioris est saporis; cortex radiceis multo est dulcioris.” *Ibid.* p. 254.

“ Syrupus Sambuci. . . This cannot have much expected from it; for the juice itself, as an indifferent antiscorbutic, in which intention the syrup is prescribed, may be conveniently drank a pint in a day, or more, for some time together.” *Quincy (Pharmacop.* p. 378): who on this account never tried it.

## E S U L Æ.

## S E C T. I.

1. *Esula*, *Esula minor*, *Pityusa*, *offic.* *Tithymalus foliis pini*, forte *Diolcoridis Pityusa*, *B. P.* 292. *T.* 86. *H. Ox.* 3. 337. *T. cyparissæ similis*, *pityusa multis*, *J. B.* 3. 665. *R. H.* 876. *T. pineus*, *Ger.* 499. *Pityusa*, *Tithymalus pineus*, sive *Esula minor*, *Park.* 192. *Esula minor*, *Dod.* 374. *Euphorbia inermis*; foliis confertis liniaribus; umbella universali multifidæ, partialibus dichotomis, foliolis subrotundis, *H. Cliff.* 199. *Pine Spurge*, or *Small Esula*.—This has a long slender creeping root, brown without, whitish, or pale within, of a burning hot taste, and no smell.

2. *Esula major*, *offic.* *Tithymalus palustris*, fructicosus, *B. P.* 292. *T.* 87. *H. Ox.* 3. 341. *Tithymalus magnus multicaulis*; sive *Esula major*, *J. B.* 3. 671. *R. H.* 864. *Esula major*, *Dod.* 374. *Esula major Germanica*, *Ger.* 501. *Tithymalus palustris* sive *Esula major Germanica*, *Park.* 188. *Euphorbia inermis*, foliis lanceolatis, umbella universali multifida, polyphylla, particularibus trifidis, triphyllis, propriis bifidis, *H. Cliff.* 200. *Great Marsh*, or *German Spurge*.—The root of this is large, long and branched, brownish (or gray) on the outside, pale within, tasting like the former.

3. *Cataputia*, *Cataputia minor*, *Lathyris*, *offic.* *Lathyrus major*, *B. P.* 293. *Lathyrus* sive *Cataputia minor*, *Lob.* 197. *Ger.* 503. *J. B.* 3. 880. *L. major hortenensis*, *Park.* 191. *Tithymalus major*, annuus, glaucifolius, *H. Ox.* 3. 339. *T. latifolius Cataputia dictus*, *H. L.* 599. *T.* 86. *Lathyris*, *Dod.* 374. *Euphorbia inermis*, foliis oppositis lanceolatis, umbella universali trifida, polyphylla; partialibus triphyllis, reliquis diphyllis, *H. Cliff.* 198. *Common*, or *Garden Spurge*.—This is an oblong, roundish, and somewhat flattened seed, about the bigness of a small pepper (*piso majora*, *Dale*) containing under a brown or gray coated shell, a white kernel, of a sweetish taste at first, then acrid, and nauseous, without any smell. It abounds with a milky juice.

The first two grow wild in France, Germany, &c. flowering in June: the third is common in our gardens, sows itself, and flowers the second year in June or July, and after the seed is ripe dies.

*Tithymalus* is derived according to some writers from *τιθος*, *mamma*, unde *τιτθη* & *τιθη*, *nutrix*; and *μαλος* *albus*, *exitiosus*. It is sometimes *Tithymalus* in Hippocrates, but oftener *τιθυμαλλος*. He orders it several places both

outwardly and inwardly. "Aliud quod stercorea per alvum expellit. In car-  
 "cas succum Tithymalli instilla, in singulas septies, deinde in novum vas  
 "compositas reconde, ac exhibe ante cibum." *De Virgu Acutorum*, v. 2. §. 69.  
 p. 323. ed. Lindenii. Pityusa comes from *πιτυς*, pinus. Efula vel Ezula is  
 supposed by some to be Arabic: though Bauhinus thinks it may come from  
 Pityusa, as by cutting off *pity*, *usa* remains, whence usula, & inde Efula.  
 Vide *B. P.* The Tithymali were much more used by the antients than by  
 the moderns. *Dioscorides* has twelve species of the Tithymalus. Vide l. 4.  
 c. 165—70. p. 306—11. *Theophrast. Hist.* l. 9. c. 12. p. 183. writes it *τιθυ-*  
*μαλλες*. All are not agreed about the medicinal species: but it matters no;  
 since the *T. helioscopius B. P.* which is the Tithymalus *offic.*, Wartwort in  
*Dale*, may serve for all the nineteen Tithymali with which he presents you.

## S E C T. II.

They are all acrid and almost caustic cathartics; evacuating chiefly serous  
 and watry humours: they are commended by some in dropsies, quartans, and  
 other obstinate diseases; and condemned by others, as altogether unsafe.

"Efulæ *offic.* Cortex præcipuè radices, hinc & folia, & succus, sed rarif-  
 "simi usus est. Pituitam & serum validissimè præcipuè per inferiora purgat,  
 "unde & rusticorum rhabbarum audit. Est autem acris, ignea, erodens,  
 "adeo ut impudentium medicorum fraudi inserviat, qui ejus succo cutim sibi-  
 "met exulcerant scabritiei specie. Corrigitur bdellio. . . Mitescit præpara-  
 "tione. *Præpar. Extracta varia.*" *Schrod.* 765.

1. Though these at first are not disagreeable to the taste, yet they soon raise  
 a painful heat and inflammation in the mouth and throat, though nothing was  
 swallowed, which lasts a considerable time. "The leaves of Tithymalus cy-  
 "parissias *B. P.* have the taste of almonds, whence the milk is drawn by  
 "emulsion; they are styptic, but without acrimony or bitterness, and reddens  
 "(*affez*) the blue paper: the root reddens it much more; they have at first  
 "the same taste with the leaves, but at last leave a most remarkable acrimony  
 "in (*le fond de la gorge*) the throat . . . for however little of the root is swal-  
 "lowed it leaves a considerable acrimony, and an impression of fire, which is  
 "felt not in the throat only, but all along the œsophagus, and sometimes in  
 "the stomach itself." *T. Hist.* p. 152. — 2. They all abound with a milky  
 proper juice, in which are contained their specific virtues, which is so acrid as  
 to inflame and ulcerate the skin. This beggars and school-boys know of the  
 sun-spurge or wartwort. But it must remain some time on the skin to have  
 this effect: when soon wiped off it does nothing. Does this explain the rea-  
 son why the taste of some of these plants are said to have no acrimony in  
 them. — 3. "Analyti chymica ex Tithymali recentis *lib* prodierunt humo-  
 "rum (primo cum levi odore & sapore herbaceo & quadam acredine,  
 "obscurè salis & alcali urinosi; deinde acidi, &c.) *lib*iv. *3iv*. *3vj*. gr. *lv*; olei  
 "3ij. *3vij*. gr. *xvij*; carbonis fuerunt *3vj*. *3ij*. gr. *xij*. unde cinerum *3j*. *3v*.  
 "gr. *xvij*. & inde salis fixi alcali *3iv*. gr. *xvij*. (ergo terræ *3j*. *3j*.) &  
 "Jactura fuit *3j*. *3vij*. gr. *lix*." J. Raius suspicatur hanc plantam cum  
 "Tithymalo foliis pini, &c. unam & eandem esse. Hæc enim a cyparissia



“differe videtur sola radice longiore crassiore, minusque fibrosa, quod quidem  
 “varietas prioris esse potest. Eas tamen *T.* distinguit.” *Geoff.* iii. p. 449.—  
 4. The ancients used the Lac Tithymalorum externally for warts and many  
 diseases of the skin, for ulcers, fistulas, gangrenes, &c. Vide *Dioscorid.* l. c.—  
 5. Internally used it is a violent heating and inflaming cathartic. “Succus  
 “lacteus per alvam pituitam bilemque trahit, obolis binis in posca sumptis;  
 “at cum aqua mulsa, vomitiones etiam movet.” *Dioscorid.* l. c. It is com-  
 mended in the dropsy, cachexy, quartans, gout, &c. by some. “Cura omnis  
 “hydropis a me semper felicissimè, summa cum ægrotantium salute experta  
 “hæc est. R Extracti Esulæ a ʒß. ad ʒj, aquæ font. q. v. colatum bibitor.”  
*M. Rulandus Cur. Empir.* p. 209. *Schroder* describes this extract. But why  
 should it be dissolved? However, little use is now made of the Spurge in any  
 form. “Vidit Gabelchoverus ex usu Esulæ inordinato ardentem febrem exci-  
 “tatam; sicut & Schenckius. D. Michaelis puerulum desperata alvi ob-  
 “structionem laborantem per Esulæ radicis pulverem curavit postquam nihil  
 “perfecerat etiam fortissimis purgantibus.” *Etmuller.* i. p. 746. “The shops  
 “being furnished with safer and gentler medicines, both the Esulas are grown  
 “pretty much out of esteem, and very rarely prescribed.” *Miller. Bot.* p. 192.  
 And—6. The virtues depending on the milky juice, principally if not solely,  
 and the root containing more or less of this according as it is managed, *e. g.*  
 cut in larger or in smaller pieces, &c. the dose must be uncertain. This  
 might be prevented by collecting the milk *per se*, or using the semina Catapu-  
 tiæ, decorticated or in emulsion. For the common way of preparing the root  
 sometimes intirely robs it of its virtues, at others only lessens them. *N. B.*  
*Dr. R*—*d* tells me he has eaten the sem. Cataputiæ; that their taste is pretty  
 agreeable, not acrid; and that they purged him.

## S E C T. III.

The root of either, or of the bark only, has been given when prepared in  
 substance to ʒj, in infusion to ʒij; unprepared to gr. xv: the extract to ʒß:  
 Spurge seeds to N°. xii. which weigh about gr. x. It is corrected by acids  
 and mucilaginous substances.

Some prepare it “triduana maceratione in aceto acerrimo, & exsiccatione;”  
 others infuse it only one day. Vide *Schroder*, l. c. *Geoff.* iii. 452.—Authors  
 differ much in the dose. “Seneretus gives it a gr. v. ad gr. x. as does Ferne-  
 “lius: Morellus a gr. vi. ad xv: Horstius a gr. xv. ad ʒj: Riolanus a ʒij.  
 “ad ʒj.” Vide *Sim. Pauli.* *Bates* orders “Cataputiæ bacc. N°. x: Esulæ  
 “cort. gr. vi. xii. xv.” *Geoffroy* directs “præparati radicis corticis pulvis a ʒj.  
 “ad ʒj, in infuso ad ʒij; extracti ʒj. aut ʒß: semina Esulæ N°. x. vel xii:  
 “*Dioscorides*’s dose seminis Lathyridis is N°. vii: *Ætluarius*’s N°. xx: *Schro-*  
 “*der*’s N°. xii.” In *Pliny* l. 26. c. 8. we have “Succus excipitur ficis, ut  
 “cum iis arefcat. Quinas autem guttas singulis excipi satis est. Traduntque  
 “etiam, toties purgari hydropicos fico sumpta, quot guttas lactis exceperit...  
 “Est tam ferventis naturæ, ut per se extra corpori impositum, pustulas ignium  
 “modo faciat, & pro caustico in usu sit.”

## LECTURE

## L E C T U R E XLII.

## F I L I X.

## S E C T. I.

1. **F**ILIX, Filix mas, *offic.* Filix non ramosa dentata, *B. P.* 358. *T.* 536. *H. Ox.* 3. 578. Filix vulgo mas dicta sive non ramosa, *J. B.* 3. 737. *F. mas*, *Dod.* 462. *Ger.* 1128. *F. mas non ramosa*; pinnulis latis, densis, minutim dentatis, (*Johns.*) *Gen.* 1129. *F. mas vulgaris*, *Park.* 1046. *R. H.* 143. *Syn.* 120. Polypodium duplicato pinnatum, pinnulis obtusis, crenulatis, *F. Lap.* 208. *P. fronde duplicato-pinnata*, foliolis obtusis, crenulatis, petiolo strigoso, *H. Cliff.* 475. Common Male Fern.—The roots of this consist of a great number of long blackish fibres, matted together and issuing from a thick knotty head, of a sweetish subastringent taste, and earthy but not disagreeable smell.

2. Filix foemina, *offic.* Filix ramosa major, pinnulis obtusis, non dentatis, *B. P.* 357. *T.* 536. Filix major & prior *Trago*, sive ramosa repens, *J. B.* 3. 735. *F. femina*, *Dod.* 462. *Ger.* 1128. *R. H.* 149. *Syn.* 124. *F. femina vulgaris*, *Park.* 1037. *F. ramosa repens vulgatissima*, *H. Ox.* 3. 583. *Pteris fronde supra decomposita*, foliolis pinnatis pinnis lanceolatis, infimis pinnatifidis, superioribus minoribus, *H. Cliff.* 473. Common Brakes, or Female Fern.—This has a single very long root, seldom of a finger's thickness, yet spreading much by lateral shoots; of a black colour without, spotted within; and of a viscid, bitterish taste, more disagreeable than the former.

3. Filix florida, *Osmunda regalis, offic.* Filix ramosa non dentata florida, *B. P.* 357. *R. Syn.* 125. *F. floribus insignis*, *J. B.* 3. 736. *Osmunda*, *Lob.* 474. Filix palustris, *Dod.* 463. *F. florida sive Osmunda regalis*, *Ger.* 1131. *R. H.* 151. *F. botrytis sive florida major*, pinnulis non dentatis, ex adverso nascentibus, *H. Ox.* 3. 593. *Osmunda regalis sive Filix florida*, *Park.* 1038. *Osmunda vulgaris & palustris*, *T.* 547. *O. frondibus caulinis*, simpliciter pinnatis, pinnis lanceolatis, *H. Cliff.* 472. The Flowering Fern, or Osmund Royal.—The root resembles that of the male fern in every thing, except that the fibres (or strings) are grosser and longer, and not so much matted together. *Miller* says the root of the male fern is generally sold for the Osmund royal, by the herb-women. *Bot.* p. 200.

The first and second are very common here; the third is more rare. They grow in moist woods and marshy places. The male and female ferns are generally thought to be the *Pteris* and *Θηλυπτερίς* *Dioscoridis*. Vide l. 4. c. 186. & 187.

“I have observed four sorts of fern by most writers esteemed to be the male fern of *Dioscorides*, by *Anguillara*, *Gesner*, *Cæsalpinus*, and *Clusius* accounted to be the female. And so indeed do I think them to be, though I call them the male with the multitude.” *Johns.* on *Ger.* 1129. “Folia utriusque lateribus pinnata, unde nomen Græci imposuere.” *Plin.* l. 27. c. 9. “Water-fern . . . it is called in Latin (it hath no Greek name) *Osmunda regalis*.”



“regalis, for the singular properties therein . . . in Italian Osmunda, in French Osmunde, in English Osmund, Ferne Osmund the Waterman, Osmund royal, and St. Christopher’s herb.” *Park.* p. 1039.

The root and part of the stalk, cut obliquely, represents not badly the figure of a spread eagle drawn on it.

## S E C T. II.

The male and flowering ferns are acescent, subastringent and vulnerary; called hepatic, splenic, scorbutic, and commended for worms, rickets, obstructions in the viscera, especially of the spleen, &c. The female is more detergent and diuretic; more effectual against worms; and externally used for burns.

“Mas & foemina promiscuè usualis, *offic.* Radix imprimis filicis foeminæ. *Vires.* Splenetica est, calf. & siccatur, amara est, subastringit, aperit. *Usus præcip.* in obstructionibus viscerum, & imprimis lienis & uteri. Extrinsecus commendatur ad ambusta. (extracta mucilago) N. gravidis infensa censetur.” *Schroder.* 590. “Utumur radice, præcipuè maris.” *Nucl. Belg.* p. 115.

1. The male and flowering ferns differ not much in taste and smell from the Capillaries. “Filix mas & foemina odoris sunt fortis instar capillarium, saporis subausteri & subamari.” *Nucl. Belg.* l. c. “Osmundæ regalis radix est saporis subausteri.” *Ibid.* p. 218. And they all differ not much from the capillaries in virtues. But the root of the female is viscous, or abounds with a mucilaginous juice, disagreeably bitter and strong scented. “The root is glutinous, a little bitter, and distasteful. It does not redden the blue paper. By a chymical analysis, much acid liquor, much sulphur and much earth, are got from it. The leaves yield also a little urinous spirit.” (From the *Regist. de l’Acad.*) . . . “It gives much fixed salt, which is used in making glass and soap. In Britany and Normandy, in bad years, they make bread of the root of common brakes. I saw it at Paris in 1693 and 94, brought from Auvergne; it was very bad, and like to the *mottes que l’on brule.*” *T. Hist. Pl.* p. 443. Vide *Geoff.* iii. p. 477. The ashes of brakes are much used in bleaching of linen in the west, also in England. *R. H.* l. c.—2. They are eaten sometimes, though not commonly, by cattle.—3. The expressed mucilaginous juice is highly commended by some for burns. Vide *Geoff.* iii. p. 476. vel *R. H.* l. c.—4. They are commended in nephritic pains and worms: here the female excels. “Radicis Filicis foeminæ pulvis, & pondere ʒβ. (ʒj. S. Paul.) ex aqua mulsa sumpta, lumbricos latos (atque etiam longos) enecat; imo præsentissima earum pestis est, teste Simone Pauli, eamque inter secretissima secreta adversus lumbricos habent & venditant Ægyptæ.” *R. H.* For the rickets the Osmund is made a specific. “Rachitidi morbo dicto remedium præstantissimum, & quasi proprium & specificum censetur Osmunda radix, cui percurandæ vel sola sufficiat. In Rachitide uti soleo conserva asparagorum, seu germinum tenerorum hujus & filicis maris, vel etiam Asplenii & Phyllitidis, prospero successu D. Bowls.” *R. H.* 151: where it is commended also for hernias, inveterate ulcers, wounds, bruises, in decoction or powder. And doubtless they may be numbered among the aperientia

rientia deterfiva ad interna ulcera, and antiscorbutica leniora: but they are acida austeri only in *Boerb. Lib. M. M.*

“ Filix fœmina utilis contra latos ventris lumbricos & contra tenues: contra  
 “ latos quidem ex melle, contra tenues vero ex vino dulci cum polenta. Quin  
 “ etiam si mulieri detur, gravidis quidem abortum, simpliciter autem fœmi-  
 “ nis sterilitatem facere dicitur.” *Theophrast.* l. 9. c. 25. *Dioscorides* says the  
 same; and recommends it for too moist and obstinate ulcers. But of the  
 Pteris he says, “ Laborantes ex liene efficaciter restituit. Quinetiam cum  
 “ axungia contrita & imposita ictis ab arundine efficaciter auxiliatur: cujus  
 “ rei probatio talis fertur. Perimetur Filix quam per ambitum sata copiosior  
 “ arundo cinxerit; & contra extinguitur & evanescet arundo quam multa Fi-  
 “ lix circumdederit.” *Dioscorid.* l. c. Vide & *Plinii* l. 27. c. 9.

Mentiti etiam sunt authores de Filicibus, 1. If a pregnant woman step over Ferns she will miscarry: 2. Their smell drives away serpents: 3. The seed in a ring defends from enchantment: 4. A bit of the root, put under a horse's tongue, when he falls down suddenly without any known cause, will make him urine, dung and get up, and the like.

“ Ex radicum Filicis fœminæ recentium ℔v per retortam distillatis prodie-  
 “ runt humorum ℔iv. ʒij. ʒiv. gr. xxx; olei ʒij. gr. xlvij. Carbonis fue-  
 “ runt ʒix. ʒj. gr. xxxvj: unde cinerum ʒij. gr. xxx; & inde salis fixi falsi  
 “ ʒj. gr. xx. (ergo terræ ʒj. ʒvij. gr. x:) & Jactura fuit ʒiv. ʒvj. gr. xxx.”  
 The same quantity foliorum & stipitum yielded olei ʒxʒ: salis fixi alcali ʒiv.  
 gr. lxii. Vide *Geoff.* iii. 474.

### S E C T. III.

They may be given in powder, infusion, decoction, conserve, &c. ad libi-  
 tum.

*Dioscorides* orders of the male ʒiv, and of the female ʒij. *Pliny* ob. ij or ʒj. *Galen* follows *Dioscorides* in the male, and says the female has the same virtues. *Sim. Pauli* thinks ʒj enough.

## G A L A N G A.

### S E C T. I.

1. Galanga, Galanga minor, *offic.* Galanga, & Galanga minor officinarum, *B. P.* 35. *Theat.* 638. Galanga minor, *Clus. Exot.* 211. & 275. *Ger.* 33. *J. B.* 2. 739. *Park.* 1585. *R. H.* 1337. *H. Ox.* 3. 225. Common Galangal, or Small Galingale, — is a tuberous knotty root, cut in short pieces (scarce an inch long, and not half so thick, *Mill.*) marked with superficial circles or rings; of a brown colour, somewhat reddish on the outside, of an acrid aromatic taste, with the flavour of camphire or zedoary, and fragrant spicy smell.

It is said to grow in China. “ The lesser Galangal is brought from China, and is preferable before that of Java.” *Mandelst.* *Harris Collect.* 2. 142.

2. Galanga major, *offic.* Galanga major, *B. P.* 35. *Theat.* 639. *Clus. Exot.* 211. *J. B.* 2. 738. *Ger.* 33. *Park.* 1585. *R. H.* 1338. *H. Ox.* 3. 255. Great Galangal,



Galangal, or the Greater Galingale—is a large tuberous knotty root, an inch thick and more, brown without with circular rings, and whitish within; of a bitterish aromatic taste, with the flavour of scordium; and of a fragrant smell.

It grows in Java and Malabar. “It is sold by the druggsters under the name of Radix Acori, or Acorus root.” *Miller Bot.* 206. The name Galanga is said to come from the Arabian Chaulengiam or Culungen, for so Serapio calls it. Vide *Garcias in Clus. Exot.* p. 211. & *Not. in Garc.* Ibid. p. 215. *J. B.* says he saw in Cortusus’s garden at Padua, the Galanga major, and that it had leaves like the iris. “By the best judges they are supposed to be a species of the iris.” *Miller Bot.* p. 206. “Simili omnino fructificatione gaudent Bangala Indorum, cardamomum majus & minus, costus Arabicus, utraque Galanga, zedoaria, zerumbeth *Garciaë*, zingiber, & proinde una cum curcuma sub uno & eodem genere summo merentur reponi.” *H. L.* p. 211. and in *B. Ind. alt.* 2. p. 128, the Galanga major *B. P.* is named as a plant in the Leiden garden, and said to have the habitus cannacori; though I find it neither in the *H. Cliffortianus* nor in *Linnaei G. Pl.* yet among his genera are canna (*i. e.* cannacorus) amomum, costus, curcuma.

“Galanga minor, & Galanga Sinensis, *offic.* Chaulengian & Chaferudarua, Avicennæ. Γαλαγγας & γαλαγκας Pauli Æginetæ & Aëtii. . . Hæc radix veteribus Græcis prorsus incognita fuisse videtur.” *Geoff.* ii. p. 58. “Galanga (Chaulengian) frustra involuta, rubea & nigra, Mesarque dixit est Casurudar ipsum.” *Avicen.* l. 2. tract. 2. c. 321. fol. 132. b. *Aëtius* and *Paulus* too are commonly reckoned among the ancient Greeks: but in neither of them can I find any thing like Galanga. Perhaps Myrepsus is the first Greek writer that mentions it; and I think only in the two antidoti e Galanga. It is to the Arabians we are indebted for these roots. Both are excluded the *London M. M.*

## S E C T. II.

They are aromatic, diaphoretic attenuating, diuretic and carminative; called stomachic, cephalic and uterine; commended internally chiefly in weak and windy stomachs, flatulent colicks, palsies, female obstructions, &c. and as an errhine externally.

“Minor majori præfertur. Stomachica est, cephalica ac uterina: calf. & sicc. 3. saporis est acris, incidit, aperit. *Ufus* in cruditate, & inflatione ventriculi, vertigine, uteri obstructione, aliisque totius corporis affectibus a frigidityte & flatulentia oriundis. Extrinsecus commendatur ad roborandum caput, in errhinis. *Præp. Species Diagalanga.*” *Schroder.* p. 594.

1. They are both remarkably aromatic and acrid. “Minor est sapore admodum acri, adeo ut mansa piperis & gingiberis modo linguam & fauces exurat; odore cypero similis.” *Matth.* p. 23. “Major est odore acri, sternutamenta provocante; sapore acerrimo, ingrato, ventriculum subvertente.” *B. Theat.* l. c. “It is of a bitterish taste, somewhat aromatic, but not near so much as the smaller Galingale.” *Miller Bot.* l. c. “Eligo, inquit Cordus de minore, nitidam . . . gustu cum aromatica suavitate acerrimam & odoratissimam. Idem de majore ait, odore valde acrem esse, “ caput

“caput petere & sternutamenta movere; non tam gratam & jucundam ut minor, sapore acrem sed nauseabundam. Præferunt materialistæ majorem, quam & crassam dicunt, minori, quam Indicam & subtilem.” *Hoffman*. p. 240. “Minor . . . odore est aromatico fragrante; sapore acri aromatico, subamaricante, pungenti & fauces exurente, piperis aut zingiberis modo. . . Major est odore & sapore longe debiliore, & minus grato.” *Geoff*. ii. 58. Their different flavour seems to entitle them to different virtues, though the same are commonly attributed to both. The lesser is reckoned only more efficacious; yet some prefer the greater, which is also more valued in the Indies, as *Acosta* writes. Here it is little used, and even left out of our Dispensatory; so that it is rarely to be got, is seldom fresh, and commonly carious. — But 2. In Malabar it is used many ways; e. g. as a spice, and as a seasoning pickle, made into cakes with caco-milk, which they think a very great stomachic, &c. But it is especially commended in urinæ difficultatibus. “Quo in morbo, says *Acosta*, miram ejus efficaciam experiri, sive ob humores crassos & pituitosos, flatulæ, aut arenulas in ureteribus, aut collo vesicæ congestas urinæ difficultas orta sit; vel etiam ex carnis excrementis in ipso vesicæ collo, aut meatibus nata.” *Clus. Exot.* p. 275. & *Bontius in Garcias*, fol. 9. — 3. Probably the minor is more diaphoretic, and the major more diuretic. Both are said to abound with a volatile oleum aromaticum, and are more commended than used in cold phlegmatic diseases of the head, stomach and uterus. “*Paracelsus* Galangam non inconcinne externum ventriculum vocavit, propter vires restituendi ventriculi interni labes & defectus. . . . Unum ex primariis stomachicis nervinis & uterinis est. . . . Quando ob imbecillitatem ventriculi affligunt tempore matutino vertigines caput, vel propter consensum ventriculi sunt suffusiones nothæ, Galangæ pulvis est egregius.” *Etmüller*. i. p. 574.

## S E C T. III.

They may be given to ʒß, in infusion to ʒj. The minor is used in the tinct. salutifera & tinct. ad stomachicos.

“Galangæ dosis a gr. xv. ad ʒß. in substantia, infusa vero ʒß. ad ʒij. in aqua vel vino.” *Geoff*. ii. p. 61. “The greater Galingale is an ingredient in the pulvis ari compositus, or else it is not much used.” *Miller, Bot.* p. 206.

## G E N T I A N A.

## S E C T. I.

*Gentiana, offic.* *Gentiana major lutea*, *B. P.* 187. *T.* 80. *H. Ox.* 3. 484. *F. Lap.* 64. *Gentiana, Dod.* 342. *G. vulgaris major*, *Ellebori albi folio*, *J. B.* 3. 520. *G. major*, *Ger.* 432. *Park.* 402. *R. H.* 716. *G. veterum*, *Clus. H.* 311. *Gentiana floribus lateralibus confertis, pedunculatis; corollis rotatis*, *H. Cliff.* 80. Common or Great Gentian or Fellwort — has a large long and somewhat spongy root, brown and wrinkled on the outside, more yellowish within, of a very bitter taste, and little smell.



It grows in Norway, Germany, Switzerland, France, &c. flowering in June and July. "Ex Alpibus Pyrenæis, Arvernæque montibus, ubi copiose crevit affertur." *Geoff.* ii. 62. "Choose it moderately thick, recent, plump, very dry, well cleaned from the earth, of a good yellow colour. That which is dried in an oven is blackish within, otherwise it is of a golden yellow. It grows plentifully in Burgundy. It is also found in the Pyrenees and Alps; and loves moist places." *Savary, Dict.* 2. p. 228. "Quantum nobis constat Gentiana non occurrit in Lapponia nec in ulla parte Sueciæ aut Scandinaviæ nostræ, nisi tantummodo in Norwegiæ quadam parte *Walleri* dicta." *F. Lap.* 64.

It is generally believed to be the *Gentiana antiquorum*; though *Dioscorides* l. 3. c. 3. gives it folia juglandi, plantaginive similia, subrubentia; and *Pliny* l. 25. c. 7. folia fraxini sed magnitudine lactuæ. It takes its name from its inventor *Gentius*, King of *Illyria*, who was vanquished by *Anicius* the Roman Prætor, *A. U.* 585. *i. e.* ante Christum natum 167. Vide *Hooke's Rom. Hist.* 2. p. 432. so that it is neither to be found in Hippocrates nor Theophrastus.

"Periisset tota Gentidis, antiquissimi Illyriorum Regis, jampridem cum nomine fama, nec esset regiæ ejus fortunæ monumentum aliquid, nisi renascens quotannis Gentiana, gratâ inter homines memoriâ, honorem illi identidem augeret, amareque hominem & laudare posteros cogeret; qui, ut generi humano prodesset, in frigidissimis regionis suæ, ventosisque montibus, neglecto regiæ potestatis honore, herbas querere, & inventas nobis indicare, veritus non fuerit. Jam innocenter sibi, utiliter vero aliis, tunc reges imperia tractabant, gaudente ut par est matre omnium terrâ, argentibusque vires suas herbis, quæ regum manibus foderentur. Gaudente etiam medicina, quæ reges haberet auctores, eorumque dignitate suum & ipsam honorem & gloriam augeret. Quanto Illyriorum regi honestiùs hoc in laudibus suis audire, quam Cæsari 192000 hominum occisa præliis, qui maximus fortunæ & gloriæ ejus cumulus est, in honorem suum fecisse? Et quos bello alii perdidērunt, inventæ a se Gentianæ remediis ad sanitatem instruisse." *J. B.* 3. 519.

## S E C T. II.

It is bitter, aromatic, attenuant, diaphoretic, antiseptic; called cordial, alexipharmic, stomachic, hepatic, uterine, anthelmintic; and commended for want of appetite, jaundice, green-sickness, dropsy, intermitting and malignant fevers, worms, venomous bites, &c.

"Calf. & sicc. 2. alexipharmaca est, aperit, attenuat. *Ufus præcip.* in peste aliisque venenatis affectibus, in obstructione hepatis, lienis, &c. et hinc in hydropse, tum in suffocatione uteri, in imbecillitate ventriculi, lumbricis, in febribus, in morsu canis rabidi, &c. Extrinsecus adhibetur creberrimè in vulneribus ac fonticulis mundificandis, renovandis, &c. In morsu canis rabidi arceno, (cum theriaca imposita). *Præp.* 1. Succus inspissatus. Creberrimi est usus in febribus intermittentibus, in quibus ante paroxysmum a ʒß. ad ʒj. exhibetur felici cum successu. 2. Extractum cum sp. vini factum." *Schroder.* p. 596.

1. Although

1. Although it is very bitter, (bitter according to Dr. Grew in the 10th degree,) yet it is not nauseous, and leaves an agreeable relish behind it: and hence it is one of the most usual bitters. — 2. Its texture being spongy it was formerly much used in tents, to dilate ulcers, clean fistulas, &c. — 3. It keeps well, its virtues being fixed, not volatile. Hence the extract is good, but the distilled water of little worth. “Manet integra triennium aiunt.” *Hoffman*. p. 247. — 4. It is commended in many diseases. *Hoffman* cured an old poor man of a paralysis linguæ with it. *l. c.* “Puer quidam integro anno cæcus, rad. Gentianæ incisæ, in vino coctæ, decocto oculis siphunculo injecto mane, per tres vel quatuor dies convaluit. Ex obs. Reusneri.” *R. H.* 716. “Succum Gentianæ inspissatum Gesnerus (*Epist.* l. 2. p. 62.) valdopere laudat, & dicit se illo tutò, citòque sanasse tertianas longas, & nothas, & hujusmodi alias.” *Etmuller* 1. 576.

“Radix Gentianæ magnam olei copiam præbet, multum etiam terræ exhibet, & phlegmatis acidî; parum vero spiritus urinosi. Unde vires ejus referendæ sunt ad salem acidum, partim terra adstringente saturatum, partim plurimo sulphure involutum.” *Geoff.* ii, p. 62; who can give the principles of bodies as well without, as with an analysis.

## S E C T. III.

It may be given in infusion or decoction to ʒij: the extract to ʒß. The root is an ingredient in the Theriaca, Mithridatum, Diascordium, Pulvis Diatessaron, Decoctum Diascordii, Infusum amarum, Infus. amar. cum fenna, Tinct. Rhei amara, T. salutifera, T. ad stomachos. T. Corticis Peruviani, Elixir stomachicum; and the Extract in the pill. stomachicæ.

## G L Y C Y R R H I Z A.

## S E C T. I.

Glycyrrhiza, Liquiritia, *offic.* Glycyrrhiza filiquosa vel Germanica, *B. P.* 352. *T.* 352. G. radice repente vulgaris Germanica, *J. B.* 2. 328. G. vulgaris, *Dod.* 341. *Ger.* 1302. *R. H.* 910. G. vulgaris, filiquata, *Park.* 1099. G. vera filiquosa vel Germanica, *H. Ox.* 2. 89. Glycyrrhiza leguminibus glabris, *H. Cliff.* 494. Common Licoris, or Liquorice. — This has a very long and pretty thick root, of a brown colour without, yellow within; of a very sweet subviscid taste, and soft smell.

It is cultivated with great care in Britain, France, Germany, Muscovy, Spain, &c. There are fields of it at Workop in Nottinghamshire, in Yorkshire, &c. also in Germany; but neither here, nor (as they say) there, does the seed ripen: it never flowered with me. “Crescit in Franconia, & Hispania.” *H. Cliff.* “Nascitur spontè in Hispania, Italia, Gallia Narbonensi, & Germania, unde radix ad nos adfertur.” *Geoff.* ii. 65. *Lobel* says (*Adversar.* p. 405.) it grows wild in Narbon, and bears little filiquæ in June and July. It is said to prosper wonderfully in Persia, Media, and other eastern countries. “From



“ Tzornogar, as far as Astracan (*i. e.* 50 or 60 leagues) the country on both  
 “ sides of the Wolga abounds in Liquorice, the stalks being of the thickness  
 “ of a man’s arms, and near four feet high; the seed, which is much like  
 “ vetch, lies in cods upon the top of the stalk. The Chamagne country of  
 “ Media, especially near the river Arexis, is also full of it, but the juice  
 “ much sweeter, and the root much bigger than those of Europe.” *Helstein*  
*Ambas. Harris Coll. 2. p. 45.*

The consumption of this root is truly prodigious; for besides what grows in France, for instance, there are annually imported to Marseilles (at least were in 1688) from Spain, between 40 and 50000 lb. weight of it, and between 15 and 20000 lb. of the juice. Vide *Savary Dict. iii. p. 551*, and 511; and, for what concerns the trade in it, vol. 2. p. 1378.

*Hippocrates (de Morb. Mul. l. 1. p. 624. c. 34.)* mentions γλυκυριζα, not γλυκυριζα: *Theophrastus l. 9. c. 13.* calls it γλυκεια, and σκυθικη, viz. ριζα. (Vide p. 1094.) But since *Dioscorides l. 3. c. 17. p. 174.* says among other things, “ Fructus est platani pilularum magnitudinis, asperior, qui filiquas habet lentum modo rufas & parvas,” the Glycyrrhiza capite echinato, *B. P.* seems to be the species used by the ancients, which according to *Lobel (Adversar. p. 405.)* is much inferior to the common: “ Hujus usus officinis rarior hodie, quippe, seu arida seu recens, uti nos periculum sæpe fecimus, longe vulgata dulcedine & gratia vincitur, eoque tantum voluptatis causa colitur.”

“ Dulcis est Scythica radix, quam nonnulli (ἐνθυγλυκειαν, corrigat Bod. γλυκυριζαν) Glycyrrhizam appellant, nascitur apud Mediam. Utilis ad anhelitus, & ad tussim siccam, atque in totum thoracis mederi doloribus potest. Ad hæc mederi ulceribus potest in melle. Sitim quoque extinguit si teneatur in ore. Quapropter Scythas contentos ea & hippance, *i. e.* (caseo equino) undecim aut duodecim dies vitam sustinere aiunt.” *Theophrast. l. 9. c. 13. p. 1093.*

## S E C T. II.

It is emollient and antacid (so of use in all diseases from acrimony of the fluids, or rigidity of the solids); called pectoral, stomachic and nephritic; and commended in hoarseness, coughs, consumptions, heat of urine, strangury, pleurisy, and all acute and inflammatory fevers. It is laxative to infants.

“ Sole exiccata biennium integra manet. *Vires.* Temperata est (seu moderatè calefacit) in reliquis ad humiditatem inclinat: pulmonica ac nephritica est, acrimoniam mitigans, expectorationem promovens, asperitatem leniens, alvum infantium leniter molliens. *Usus præcip.* in tussi, raucedine, vesicæ erosione, urinæ acrimonia. *Præp. 1.* Succus inspissatus. 2. Syrupus compositus.” *Schroder, p. 597.*

1. It is very sweet and subviscid. I can discover no bitterness, no acrimony in it. It seems when decocted not to ferment or turn sour so soon, as sugar or honey; and yet that it rather quenches than causes thirst, is an old observation. It may be called nourishing also. “ Plerique ægri abominantur sapor rem nostræ Glycyrrhizæ, propter amarorem. Hæc causa est, ut cum deliberatur de potu ordinario febricitantium, ubi proponitur a mulierculis, semper quæram bibistine antea? Potestne ferre? *Hoffman, p. 250.* — 2. *Dioscorides* commends

commends it, “ad vesicæ scabiem, æstuantem stomachum, thoracis, jecino-  
“ris, & renum vitia, &c.” And a more successful remedy for the cardialgia  
I know not. “Hæc diximus sitim famemque sedari. Ob id quidam adipton  
“appellare, eam & hydropicis dedere ne sitirent. Sanat & vesicæ scabiem,  
“&c.” *Plin.* l. 22. c. 9. p. 569; who adds, “Sunt qui & calculos ea pelli  
“tradiderunt.” *Dioscorides* says also, “Succus eliquatus sitim sedat.” “In  
“short, it is almost of universal use, and is hardly superfluous in any one in-  
“tention.” *Quincy Pb.* 133. We have neither analysis nor constituent prin-  
ciples of Liquorice in *Geoff. M. M.* though he has one article on the radix,  
and another on the succus.

### S E C T. III.

It may be given in substance, infusion, decoction, &c. ad libitum. It is an  
ingredient in almost every Ptisan, as it is in the Syrupus de Althæa, Syrupus  
pectoralis, Decoctum pectorale, Decoctum ad Nephriticos, Pulvis Diatragacanthi,  
Tinctura Rhei dulcis, Lohoch Diatragacanthi, Tabellæ Diatragacanthi,  
Trochisci Bechici albi: and a succus is prepared from it, or rather an extract,  
which is used in the Theriaca.

The juice is commonly imported from abroad, and sometimes is very coarse  
and full of impurities; if pure it dissolves intirely in water, leaving no fecu-  
lencies behind it. “Ex succi Glycyrrhizæ ʒj in aqua hyssopi soluti, transco-  
“lati & inspissati a ʒij. ad ʒvj. acquiritur: reliquum pondus quisquiliæ  
“æquant.” *Etmuller* 1. p. 577. “Glycyrrhiza in Creta insula, Italia, Ger-  
“mania, Gallia crescit; ibique locorum succus extrahitur. Sed laudari solet  
“qui ex Hispania affertur, ubi magna copia præparatur, præsertim circa  
“Dertusam & Ilerdam Cataloniae civitates —. Ibi, referente *D. Ant. de*  
“*Jussieu*, radices recentes Julio mense colliguntur, purgantur, in aëre fere ex-  
“siccantur: deinde minutim concisæ ex aqua coquuntur, colantur & expri-  
“muntur. Expressus succus igne inspissatur, donec manibus tractari possit:  
“tum in massulas compingitur (ʒiv. vj. vel viij.) foliis laurinis involvitur, ac  
“tandem sole perfecte siccatur.” *Geoff.* ii. p. 730.

## H E L E N I U M.

### S E C T. I.

Helenium, Enula, Enula campana, *offic.* Helenium vulgare, *B. P.* 276.  
Helenium, *Dod.* 344. *Ger.* 793. *R. H.* 273. *Syn.* 176. *H. Ox.* 3. 127. H. five  
Enula campana, *J. B.* 3. 108. *Park.* 654. Aster omnium maximus, Hele-  
nium dictus, *T.* 483. Aster foliis ovatis, rugosis, subrüs tomentosus, amplexi-  
caulibus; calycum squamis ovatis patulis, *H. Cliff.* p. 407. Elecampane—has  
a large thick branched root, brown without, white within; of a very hot, biting,  
bitter, and somewhat disagreeable aromatic taste, and strong smell.

“In pratis & pascuis humidioribus, sed rarius.” *R. Syn.* l. c. “It grows  
“in moist fields and meadows, in several parts of England, and is pretty  
“much



“ much planted in gardens, for the sake of the roots, which are only used.”  
*Miller, Bot.* 186. It flowers in July.

There is an Ἑλένιον in Hippocrates, at least in *lib. de Natura Muliebri* attributed to him, p. 572. lin. 54. among the aromata. The description of Dioscorides's first Helenium l. i. c. 27. p. 22. agrees tolerably well to our Enula. Some think it the Panax Chironium, *Theophrasti Hist.* l. 9. c. 10.

“ Erucas virides, inulas ego primus amaras

“ Monstravi incoquere.” *Horat. Satir.* l. 2. Sat. 8. v. 51.

Is it the Radix amara *Homeri*, *Il.* λ. v. 845? Some think it is called Helenium from Helena, its inventor; others from ἑλος and ἰον, palustris viola, &c. Vide *Bod. in Theophrast.* p. 683. Inula, or Enula in Latin, is, perhaps, a contraction or corruption of the Greek ἑλένιον.

## S E C T. II.

It is acrid, bitter, alcalescent, aromatic, attenuating, detergent, diaphoretic and diuretic; called pectoral, stomachic, uterine and alexipharmic; and commended in coughs, asthmas, indigestion, obstructions of the urine and menses, chlorosis, scurvy, malignant diseases, scab, itch, &c.

“ Nonnullis calf. & ficit 2. (Fernelio calf. 3. ficc. 1.) abstergit, discutit  
 “ aperit, pulmonica est. Stomachica, alexipharmaca, sudorifera, &c. *Ufus*  
 “ *præcip.* in tartaro pulmonum renumque attenuando, ac educendo, & hinc  
 “ in tussi, asthmate, in cruditatibus ventriculi emendandis, ureteribus referan-  
 “ dis, in peste, contagiosisque morbis arcendis, in scabie, &c. *Præp.* Radix  
 “ condita. Aqua, conserva, extractum & vinum enulatum, ex radice & musto.”  
*Schrod.* p. 602.

1. The taste is at first disagreeable, as it were rancid, like soap; then aromatic and bitter, and at last very hot; the heat, though not painful, continuing I think above an hour: the scent also is pretty strong, partly aromatic and partly fetid. “ Saporis est acris amaricantis, aromatici, odoris fragrantis.” *Dale* 88. “ It is acrid, bitter, somewhat glutinous and aromatic.” *T. Hist.* 396. “ Sapore est acri, aliquantisper amaro, & aromatico, odore etiam, præsertim cum exsiccata fuerit, suavi & grato.” *Geoff.* iii. 428. —  
 2. It seems to contain plenty of oil and salt, or to be an acrid natural sapo; and so dissolves phlegmatic humors, as well as stimulates the solids. “ Enula campana, in aqua communi destillata, salem volatilem exhibet, salis c. c. similem, cum odore tum virtute.” *Le Febvre. R. H.* 274. “ Spirituous liquors extract its virtues better than watery ones; the former scarce elevate any thing in distillation; with the latter an essential oil arises, which concretes into white flakes.” Vide *N. Disp.* 126. “ It reddens very little the blue paper, and smells of iris when dried. By a chymical analysis, besides several acid liquors, it gives much oil, a little urinous spirit, no volatile salt; but the leaves *en donnent assez*; so it is probable, that this plant acts by a sal volatile oleosum, whereof the sal ammoniac is not quite dissolved, but much loaded (or clogg'd) with sulphur.” *T.* l. c. “ Analyfi  
 “ chymica

“ chymica ex radicum Enulæ recentium lbv. prodierunt humorum (all were  
 “ obscurè acidi or acidi, or intensè acidi) lbiv. ʒij. ʒvj. gr. l; olei ʒix. gr. xij.  
 “ Carbonis fuerunt ʒvij. ʒj. gr. xxvij. unde cinerum ʒiʒ. gr. xx, & inde salis  
 “ fixi alcali ʒiv. gr. lvij. (ergo terræ ʒvij. gr. xxv.) Jactura fuit ʒiv. ʒvj.  
 “ gr. lv.” *Geoff.* iii. p. 429; where see the phænomena on the simple distilla-  
 tion of this root. He gives it a sal vitriolico-ammoniac, for which I see no  
 reason.—3. Its virtues are partly volatile, and partly fixed: it losing much of  
 its acrimony by drying; but retaining its bitterness and aroma. Hence when  
 recent it cleanses ulcers, scabs, &c. and so is called scabwort. —4. Internally  
 used it is said to be a specific deobstruent in such obstructions as flow from  
 phlegmatic or acid crudities, or as Schroder names them tartarous concretions:  
 and is commended also in flatulencies, palsies, cachexy, dropsy, colica picto-  
 num, sciatica, spasms, &c. “Membrorum tremori a mercurialibus orto mire  
 “ conducit.” *Herm. M. S.* “Rondeletius (in prax. l. i. c. 9.) celebrat radi-  
 “ cem Helenii, tanquam hilaritis remedium, in melancholicis affectibus, ubi  
 “ homines sunt tristes, &c.” *Etmuller* i. 581. “Helenium ab Helena, ut  
 “ diximus natum, favere creditur formæ: cutem mulierum in facie relinquo-  
 “ que corpore nutrire incorruptam. Præterea putant usu ejus quandam gra-  
 “ tiam iis veneremque conciliari. Attribuunt & hilaritatis affectum eidem  
 “ potæ in vino, eumque quem habuerit Nepenthes illud prædicatum ab Ho-  
 “ mero, quod tristitia omnis aboleatur.” *Plin.* l. 21. c. 21. p. 562. *Canit*  
*Schola Salern* (c. 40. p. 457.)

“ Enula campana reddit præcordia sana,  
 “ Cum succo rutæ succus si sumitur ejus,  
 “ Affirmant ruptis quod profit potio talis.”

“ Platerus, referente C. Hoffmanno, eam vocare solebat aromâ Germani-  
 “ cum. Commendatur præterea ut peculiare præservativum pestis tempore,  
 “ mane sumpta. Decoctum a Park. & aliis introsumptum, ad spasum, con-  
 “ tusiones, & dolorum ischiadicum commendatur; vel etiam exterius appli-  
 “ catum. Decocta in vino, aut succus vino infusus, lumbricos, & tænas  
 “ ventris enecat & expellit. Vinum ex iis paratum mirificè visum acuit.”  
*R. H.* “In chlorosi specifica medicamentum audit condita radix, &c.” *Herm.*  
*Cyn.* p. 46.

### S E C T. III.

It is given to ʒj, in infusion to ʒij, in decoction to ʒiv. It is one of the  
 ingredients of the syrupus pectoralis, and unguentum antipforicum.

“ In jusculis & apofematibus bechicis ab ʒʒ. ad ʒj. recens præscribitur, vel  
 “ ex ea cum saccharo conditum paratur ad ʒj. exhibendum. Exsiccata &  
 “ pulverata ad ʒj. vel ʒij. intus sumitur, vel cum melle Narbonensi, aut ex-  
 “ tracto seu rob juniperi fit. Electuarium, crebriori usu ad humores gluti-  
 “ nosos ubicunque hærentes incidendos & expellendos, seu per expectoratio-  
 “ nem, seu per urinas; vel tabellæ cum saccharo conficiuntur. Extractum  
 “ ejus quoque præparatur ad ʒʒ. vel ʒj. exhibendum.” *Geoff.* iii. 430. He  
 adds, “Stomacho etiam commoda & salubris est, unde tritum illud adagium.



"*Enula campana reddit præcordia sana.*" So his præcordia and his stomachu are the same!

## HELLEBORUS.

### S E C T. I.

1. *Helleborus albus*, *Elleborus*, *Veratrum album*, *offic.*—*Chab.* 527. *Helleborus albus* flore subviridi, *B. P.* 186. *H. Ox.* 3. 485. *H. albus*, *Ger.* 440. *R. H.* 168. *H. albus vulgaris*, *Park.* 216. *H. albus* floribus ex herbaceo albicantibus, *J. B.* 3. 633. *Helleborum* sive *Veratrum album*, *Dod.* 383. *Veratrum* flore subviridi, *T.* 272. *Veratrum*, *H. Cliff.* 468. White Hellebore. — The roots are about inch thick at the head, and full of large fibres; brownish without, whitish within; of an acrid, bitter, nauseous, benumbing taste, and little smell.

It grows wild in Switzerland, Austria, Stiria, &c. in mountainous and rugged soils. In gardens it flowers in July. This is generally believed to be the *Helleborus albus antiquorum* much used by Hippocrates, though but lamely described by them. "*Helleborus albus folia fert Plantaginis aut Betæ sylvestris similia, sed breviora, nigriora, & dorso rubescentia: caulem palmi altitudine, concavum; qui quidem tunicas quibus convolvitur abdicat cum arecere incipit. Radices subjacent numerosæ, tenues ac fibratæ, ab exiguo & oblongo capitulo, ceu cæpa, exeuntes, eidemque annexæ. Nascitur in montosis & asperis.*" *Dioscorid.* l. 4. c. 150. *N. B.* He does not describe the leaves either *Plantaginis*, or *Betæ*. *Theophrastus* gives no assistance here; vide *Hist.* l. 9. c. 11. nor does *Pliny* l. 25. c. 5. "Apud Dioscoridem Hellebori albi descriptio, Veratro albo nostro satis apte convenit." *Geoff.* ii. 68.

2. *Helleborus niger*, *Veratrum nigrum*, *Melampodium*, *offic.* *Helleborus niger* flore roseo, *B. P.* 186. *H. Ox.* 3. 359. *H. niger verus*, *Ger.* 976. *Park.* 211. *R. H.* 697. *H. niger* flore albo; interdum etiam valde rubente, *J. B.* 3. 635. *Veratrum nigrum primum*, *Dod.* 385. *Helleborus niger angustioribus foliis*, *T.* 272. *Helleborus scapo florifero subnudo, pedunculo communi bipartito*, *H. Cliff.* 227. Black Hellebore, or Christmas-flower. — This has black spreading roots, somewhat thick at their heads, whence issue numerous and pretty large and long fibres; of a warm, bitterish, nauseous and stupefying taste.

It grows in the mountains of Switzerland, in Austria, the Alps, &c. In gardens it flowers from the end of November to the beginning of April. This is named, and used, as if it was the true *Helleborus niger*: and Mr. *Bolduc* says he found nothing in its roots, leaves or flowers, which disagrees with the description the antients have left of it. I find a considerable disagreement. "*Helleborus niger . . . Melampodium appellatur, quoniam caprarum pastor, Melampus nomine, furentes Præti filias eo primus purgasse, & sanasse creditur. Folia ei viridia Platani similia, sed minora, foliis sphondelii proxima, pluribus divisuris scissa, nigriora & subaspera; caulis brevis: flores candidi purpurascetes, figura racemosi; semen intus Cnici. . . Radices subsunt tenues, nigrae, velut e capitulo quodam cæpæ simili dependentes, quarum usus est etiam. In asperis, editioribus, sitientibusque locis nascitur. . .*"

“ Eligi debet carnosum, plenum cui tenuis medulla sit, acre denique gustu, “ fervensque.” *Dioscorid.* l. 4. c. 151. p. 297. Would any body know this plant by this description? The Saracen reads *caulis brevis* instead of *caulis asper*, βραχὺς for τραχὺς, though Oribasius read it τραχὺς. Again Dioscorides does not describe the *folia Plantani*; and says, “ Sphondylium folia habet Plantano quadantenus similia, ad Panacis foliorum figuram accedentia.” He says also of the *Helleborus niger* “ halitu auræ suæ caput aggravat.” Neither do their virtues agree. Hence botanists have been divided in their opinions as to the *Helleborus niger antiquorum*. Perhaps the *Helleborus niger orientalis*, *i. e.* *Helleborum nigrum montis Olympi*, *rubentibus floribus*, *Obf. Bellonii* l. 3. c. 41; or, *Helleborus niger orientalis*, *amplissimo folio*, *caule prealto*, *flore purpurascens*, *T. Cor.* p. 20. may be it: at least their virtues seem to agree. Vide *T. Voy.* 2. Let. 21. p. 189. b. where he describes the root, takes notice of an extract of it, and its effects, which were so violent, that he lost one half of the esteem he before had for that grand remedy.

It is ἐλλεβορος, or ἐλλεβορον (*tenui spiritu*) in Hippocrates, Theophrastus and Dioscorides; Elleborum in Pliny. Yet the *Etymol. magnum* derives it ἀπο τοῦ ἐλεῖν βορρα; “ quod esu perimat.” *B. P.* Ελεω is constringo, and βορρα cibus. Veratrum dicitur quod mentem vertat, or à verare, *i. e.* vera loqui: Melampodium from its inventor.

“ Nigrum vero ab eo qui comperit, & primo succidit, Melampodium quidam appellant, quo & domos lustrant & oves purgant, quadam cum incantatione.” *Theoph.* l. 9. c. 11. p. 1063. See how superstitiously it was dug up in *Theoph.* l. 9. c. 9. p. 1041. and in *Dioscorides*, l. 4. c. 151. sub finem.

## S E C T. II.

The white Hellebore is a dangerous and virulent emetic; commended in melancholy, madness, inveterate quartans, and the like; but seldom used, except as an errhine, to provoke sneezing, purge the head, rouse lethargic persons, &c,

“ Ob violentiam purgationis, quam per superiora & inferiora exercet, usum purgandi interdum soli fere Elleboro nigro linquit. Ingreditur tamen ceu basis vomitorium Conradinum. Extrinsicus sternutationes movet, scabies, impetigines & serpigines mundificat & sanat. Lethargicos excitat (naribus indita) menses proritat, subdita. *Præp.* 1. Vomitus Conradini. 2. Vinum vomitorium.” Vide *Schroder.* 765.

1. Although its taste, effects in the nose, &c. sufficiently evince it to be acrid; yet this acrimony does not appear to be so great as that of spurge-milk, of arum, or even horse-radish. But—2. The symptoms it causes when inwardly taken are much more terrible and dangerous than any these produce. “ Convulsio ex Helleboro lethalis.” *Hipp. Aph.* 1. Sectionis 5. “ Vidimus quendam ab Helleboro convulsione correptum, qui datis vomitoriis lenitivis brevi liberatus est. Eodem fortasse remedio sanatus est ille Galeni adolescentens.” *Holler. in Aphor.* p. 249. Hence it seems to be more virulent, or malignant than acrid; its narcotic quality perhaps hindering the effects of its irritation for some time, till nature exerts its utmost. “ Nemo utitur albo,”



says *Hoffman*, p. 34. §. 19. "Mesue ut cautos nos reddat, scribit corpora nostra hodie non ferre Helleborum album, nigrum non nisi difficulter." *Id.* p. 33. §. 11. "Inter venena locatur, & ab ea abstinemus." *Nucl. Belg.* 138. — 3. "Catello 3. circiter septimanarum Hell. albi ʒj. lacti immixtum infudi, vix per momentum admissum, maximam partem evomit, & paulo post flavum per alvum egressit: mox rursus aliquoties vomuit simulque convulsivis motibus variis jactatus fuit. Vix quadrante horæ elapso mortui instar in latus decubuit, ac linguâ exsertâ, mortuo similis jacuit, movente se solum adhuc diaphragmate: peractâ horâ cum dimidia semî mortui abdomen incidi, unde inter secandum pedes movere & vagire cœpit. Ventriculum flaccidum & rugosum invenimus; . . . in eo erat pulvis Hellebori, lacti grumoso & muco viscido immersus . . . circa stomachum intus ventriculus rubebat & aliquomodo inflammatus erat. Sanguis fluidus minimeque grumosus erat." Vide *Wepf. Cicuta*, p. 219. Hence it appears to have acted as a narcotic, as well as an irritant; and on the stomach only immediately. It poisons insects, hens, geese, mice, moles, &c. (vide *Park.* p. 219.) made into balls with meal and honey, or other things. For the stratagem by which Solon overcame Cirrha as recorded by Pausanias in Phocis; and how the Spaniards poison their arrows with the juice of Hellebore, see *Matthiol.* p. 846. or *Park.* 219. — 4. Though it is generally condemned, yet some venture to use it, Prescribing "Veratrum in morbis longis & contumacibus. . . Ut in melancholia, mania, morbo comitiali, coxario, calculo renum, elephantiasi, lue venerea, &c. sed intelligendum si nulla conjuncta sit febris, quæ quidem sit vehemens. Neque hyeme neque æstate usus est Hellebori; sed autumno & vere. Præterea neque in pueris, neque in senibus & mulieribus, aut mollibus & delicatis; sed in juvenibus tantum & robustis." *Hollerius in Aphor.* p. 178. The late Dr. *John Riddell* told me he had prescribed it several times in maniac and melancholic cases, and with good success; but only infused in white wine, and with other simples, particularly senna. Radicis ʒij were taken for the bottle of wine: of which he gave ʒij for the dose, (which is the infusion radicis ʒß;) which generally brought up such thick black stuff; as no other emetic would. He is the only physician, so far as I know, who ever ventured to order it here.

2. The black Hellebore is a much milder attenuating, diuretic, emmenagogue, and cathartic root; called a melanagogue; and commended in female obstructions, hysteric and hypochondriac fits, melancholy, madness, epilepsy, leprosy, inveterate quartans, &c.

"Purgat potenter humores melancholicos; utile per consequens medicamentum est, omnibus affectibus inde originem trahentibus, quales mania, infania, hypochondriaca passio, elephantiasis, herpes, cancer, quartana, vertigo, epilepsia, apoplexia, scabies; sed caute non nisi robustis, ob violentiam quam exercere aptus natus est, exhibere conducit. In decocto tamen minus periculi. Corrigitur mastiche, cinnamomo, aniso, fœniculo, & similibus. Dosis a ʒj. ad ʒij. in infusione dant a ʒj. ad ʒß. *Præp.* 1. Radix præparata. 2. Extractum sextuplex. 3. Syrupus compositus, & 4. Oxymel Elleboratum. *Schroder.* p. 762-4.

1. The taste is penetrating, and though neither very bitter, nor very hot; yet it leaves a lasting impression in the mouth, and as it were stupifies the tongue.

tongue. "The root of black Hellebore being chewed, and for some time retained upon the tongue, after a few minutes it seemeth to be benumbed, and affected with a kind of paralytic stupor; or as when it hath been a little burnt with eating or supping any thing too hot." *Grew on Tastes*. — 2. Its acrimony is partly volatile, and so are consequently its virtues. For (a) its simple water is acrid and biting, "acris & mordax." *Zwelf. Ph. Reg.* p. 518. and also purgative, according to *Herman* and *Albinus M. S. S.* "Aquam destillatam purgativa acredine esse imbutam, experimentis Zuelferi, Olai, Borrichii, & aliorum constat." *Herm. Cynos.* p. 135. (β) The decoction is milder than the powder. *Schroder*, l. c. And it yields but little fixed salt. *Zwelf.* l. c. Hence by long keeping it loses its cathartic quality. *Zwelfer* prefers the Stirian black Hellebore. The Tridentine is not purgative, *Helmont* p. 712. "What comes by the way of England, says *Bolduc*, (*Mem. Acad.* 1710. p. 233, &c.) purges little or none at all, even in substance; but that brought from Zwitzerland is plumper and has grosser fibres, and is every way better, and much superior in operation." This difference seems to be owing more to age than place. — 3. Water or wine extract its virtues better than spirits. *Mr. Bolduc* says, that the residuum of the extract with water yields nothing to sp. of wine; while what remains after it is extracted with sp. vini yields a considerable quantity of extract to water: that the resinous extract with sp. of wine purges but little, and that with irritation; and the saline extract from its residuum is not purgative, but diuretic only; though the extract made with water, without previously extracting the resins with spirit of wine, purges well and gently. See there (*viz.* *Mem. Acad.* for 1701) his chymical analysis, and compare it with *Mr. Geoffroy's*. — 4. It is commended, and at present much used, in many diseases. "In the gout and rheumatism I have known it do wonders." *Quincy Ph.* p. 183. "It has of late been very much made use of in stubborn obstructions of the catamenia, especially in sanguine and plethoric constitutions." *Miller, Bot.* p. 227. *Dr. Friend* informs us, that according to *Menzoar*, the flores nymphææ are the best corrector of black Hellebore; and that the same Arabian prescribed it for a very odd distemper, the excrescence of a bone like a horn: "His father, he tells us, had seen such an instance, of one growing in a man's back, like a horn, and much of the same substance. He adds, he had such an one himself." . . . "Micenna, says the Doctor, mentions two other virtues it has, the provoking urine and the menses: which latter quality is sufficiently known. I have made frequent trials of this medicine, and in dropsies, I must confess, I have seen more wonderful effects from it, than from any other diuretic." *Hist.* vol. ii. p. 102-4.

"Ex Hellebori nigri fibrarum lbv, analysi chymica, prodierunt liquorum lbij. žvij. žvj." (of which the first žvij. were saporis acerrimi, not acid; and the last four alkaline; the rest ex acri in acidum & stypticum saporem vertebatur;) "olei foetidi žiβ. Cap. mort. pendebat žx. in quo salis fixi žvj, & terræ damnatæ žij. žj." *Geoff.* ii. 72. Hence the sum is lbiv. živ. žij, so that the jactura, which is not mentioned here, must have been, žxj. žvj. *An recte?* By *Bolduc's* analysis, first an acid spirit, then an acid and volatile urinous spirit, and at last a volatile alkaline spirit, but not quite free of the acid, came over. *Vide l. c.* "Vis cathartica Hellebori, neque acido, neque



“acri, neque sulphuri separatim tribuenda videtur, sed iisdem omnibus naturaliter commistis.” *Geoff.* ii. 73. In what purgative is it otherwise?  
*N. B.* “Analyſi chymica ex radicibus Hellebori albi, ignis ope, primum educitur ſpiritus ſaporis acerrimi, qui mercurii ſublimati ſolutionem coagulat. Huic ſuccedit liquor acidus & erodens, tum ſal volatilis concretus, ac oleum. Sed terræ tanta copia remanet, ut ponderis radicum tertiam partem æquet. Præterea infuſum radicum H. albi chartæ ſubcæruleo tincturam magis vividam efficit, qualis præcipitur cum eadem papyrus in aquam calcis immergitur. . . . Utriuſque Hellebori radices vehementer evacuant: unde inter purgantia mochlica recenſentur, &c.” *Geoff.* ii. 72, &c.

## S E C T. III.

The white Hellebore prepared has been given to ʒß; unprepared to gr. xv; in infuſion or decoction to ʒß. But now never uſed in ſubſtance.

“Datur ſubſtantia a ʒj. ad ʒij. Paulus dat album a ʒj. ad ʒij.” *Holler in Aph.* p. 178. The aphoriſm there explained is the 13th, §. iv. “Doſis radicis præparatæ eſt a gr. x. ad gr. xv.” *Herm. & Albin. M. S.* It was prepared by maceration in wine, oxymel, or the like, for one or more days, and drying. *Schroder.* Diminiſhing the doſe does better. “Hodie ob vehementiam nunquam in ſubſtantia exhibetur.” *Geoff.* ii. 73. But

The black Hellebore is directed to be given in ſubſtance to ʒj; in infuſion to ʒij; in decoction to ʒiv; which I think too much. The extract is given to ʒj. And tincturæ (or rather vini) ʒj contains the infuſion rad. ʒiv. The root is uſed in the tinct. cephalica purgans, and pil. Rudii; and the extract in the pil. cephraticæ cum aculeo, pil. cephract. chalybeatæ, pil. de gambogia, pil. mercuriales laxantes. *Pb. Edin.* ed. 1744.

“Hellebori nigri doſis gr. xv. ʒj. ʒij. (potius gr. xv. xxx. xlv.)” *Pb. Bat.* “Datur a ʒj. ad ʒj *Meſue*, Dodonæo, Duncano; ad ʒij Sennerto. Infuſum a ʒj ad ʒß Sennerto; ad ʒijj Clandino; ad ʒij Morello; ad ʒj Fulgino. Extractum ad ʒß Sennerto; ʒj Andernaco.” *Sim. Pauli.* “Hodie raro datur in ſubſtantia, tumque a gr. xv. ad ʒij. In decocto a ʒj ad ʒij. Sed præſcribitur ſæpius extractum, cum aqua pluviali paratum a gr. xii. ad ʒj. vel ʒß.” *Geoff.* ii. 74. “Teſtari poſſum me ſexcentis ferme hominibus nigri Hellebori dilutum exhibuiſſe nullo prorſus incommodo. Pulvis diluto multo fortior eſt.” *Matthiol.* p. 846. *Bolduc* ſays it may be numbered among the moderate and gentle purgatives. *Mem. Acad.* 1701. “When given in a moderate doſe (to ʒj?) it is a very innocent and efficacious medicine, and ſo far from being a violent purger, that very often it does not purge at all: and though it ſometimes occaſions vomiting, yet frequently it does not ſo much as offend the ſtomach.” *Friend's Hiſt.* ii. p. 105.

In the *New London Diſpenſatory* there is a tinctura melampodii of the ſame ingredients and ſtrength with that of *Pb. Edin.* only it is drawn with proof ſpirits, ſo more properly called a tincture. There is alſo a tinct. veratri, which is “R Rad. Hellebori albi ʒviij. ſp. vinoſi tenuioris m. lbij. Digere & cola per chartam;” that is radicis p. i. for ſpiritus p. iv; as the former takes rad. p. i. for ſpiritus p. viii. How much tincture will it yield? What uſe is made of it?

## L E C T U R E

## L E C T U R E XLIII.

## H E R M O D A C T Y L U S.

## S E C T. I.

**H**ermodactylus, *offic.* Colchicum radice siccata alba, *B. P.* 67. Colchicum minus malignum sive Hermodactylus officinarum, *J. B.* 2. 658. Hermodactylus, *Dod.* 461. *Park.* 1587. *H. officinarum*, *R. H.* 1172. Hermodactyli officinarum, *Ger.* 164. "An Colchicum Chionense floribus fritillaris instar, tessulatus foliis undulatis, *H. Ox.* 2. 341?" *Dale* 2. 45. *Minime.* Hermodactyls — are tuberous, plump, pretty firm roots, (though easily powdered), about the size of little chestnuts, somewhat resembling a heart, but flattish on one side, brownish a little without, white within, of a subviscid farinacious taste and no smell.

They are brought from the Levant, particularly from Egypt. "Ex Syria ad nos transportatur." *Dale.* "This root is brought to us from Turkey." *Miller, Bot.* p. 230. "Sola pars interior ex oriente ad nos defertur, tunicis suis spoliata & derasa." (Malè.) *Geoff.* ii. p. 80. "Hermodates come from Egypt per Alexandrie, to Marseilles, from 80 to 100 quintals, annually." *Sav. Diët.* 3. p. 507. But what plant they belong to is still uncertain. Some make it a Colchicum, others a Cyclamen, others a Dens Canis; all perhaps with equal reason: others think it the root of the Iris tuberosa folio anguloso, *B. P.* 40; which is the Hermodactylus verus *Matthioli*, p. 778, and Hermodactylus folio quadrangulo, *F. Cor.* p. 50, or Velvet Flower de luce. *Matthiolus* had it from the learned *Augerius Busbequius*, while Resident for the Emperor at Constantinople, where it was called Hermodactylus. "A Colchici communis radice distinguatur tantum colore, sapore, & duritie. Quod quidem botanicorum nostri ævi coryphæus *Tournefortius* confirmavit, cum Hermodactyli plantam in Asia minore cum foliis & fructibus Colchici sæpius reperiisse asseruerit. Nullus igitur superest dubitandi locus, quin Hermodactylus sit radix ejusdem Colchici orientalis, quod dicitur Colchicum radice siccata albâ. *B. P.*" *Geoff.* ii. p. 80. Where *T.* asserts this I cannot find: surely not in his *Travels*, where, if it had been true, he would not have omitted it; neither in his *Corollarium*; both which he published after his return from Asia: certainly he would not have given the name Hermodactylus to a very different plant. I wish Mr. *Geoffroy* or his publishers had been more exact in quoting his authorities.

"One and the chief methods Alexander takes in relieving the gout is by purging: and in most of the purges he recommends Hermodactyls (of which he has a great opinion, and which *Oribasius* and *Aëtius* but just mention) are the main ingredients." *Friend's Hist.* i. p. 87. I have not found Hermodactylus in *Oribasius*, nor *Aëtius*. Alexander indeed recommends it in several purges in his lib. xi, which is all de podagra; as do also *Paulus*, l. 7. p. 620, and the Arabians, and later Greeks. But none of them distinctly describe them. Vide *J. B.* 2. p. 657. and *Bod. in Theophr.* p. 1144. "Hermodactylus est  
2 " radix



“radix herbæ cujusdam montanæ, & ea vel digitum longa, vel rotunda: ac  
 “eadem præstantior, si multum est alba intus & foris, magna, mediocriter  
 “dura: altera Scillæ aut Raphano proxima, si crevit, si vero lecta est, &  
 “mensis deinde sex siccata est. Rubra autem & nigra mala est, &c.” *Mesue  
 de Simpl.* l. 2. c. 7. p. 56. b. “Serapion vero sub Hermodactyli voce, uno &  
 “eodem Capite, Colchicon & Ephemerum Diascoridis, nec non Pauli Hermo-  
 “dactylum comprehendit, &c.” Vide *Manardum in Mes.* p. 57. a. Neither  
 do they agree among themselves about them. So that it is uncertain whether  
 our Hermodactyls are the Hermodactyls either of the Greeks or Arabians:  
 probably they are not; at least they don't agree in their virtues. “Arabes  
 “hocce medicamento veteribus Græcis ignoto pharmaceuticum armamenta-  
 “rium locupletarunt. Ex junioribus Græcis Paulus Ægineta de eo primum  
 “mentionem fecit.” *Geoff.* ii. 80. (or *Hill's M. M.* 553. who transcribes him,  
 adopting all his errors, ut solet, without naming him:) so that he will have  
 Paulus to be a later Greek; but Alexander wrote more than sixty years be-  
 fore him. The name of Hermodactylus badly agrees to this root.

## S E C T. II.

They relax the solids, thicken the fluids, blunt acrimony, and so are anodyne;  
 perhaps they are purgative while recent. They are called phlegmagogue, and  
 commended chiefly for the gout and rheumatism; but little used any where  
 now.

“Pituitam crassam, lentam, aliosque humores viscidos peculiariter juncturis  
 “efficaciter trahit. Ob id articularum affectibus chiragræ & podagræ, &c.  
 “conducit. Dosis ʒiʒ. ad ʒiʒ; in infusione a ʒij. ad ʒiʒ. *Præp. Pil. de  
 “Hermodactylo.*” *Schroder.* p. 768.

1. The taste promises little. “Facile in pollinem teritur subdulcem, em-  
 “plastica pulcra linguam emollientem.” *J. B.* l. c. “Saporis est sub-  
 “dulcis, cum recens acris & nauseosus.” *Herm. M. S.* “Saporis dum recens  
 “est acerrimi; dum annosa subdulcis farinacei, paulum viscosi vel lenti; odo-  
 “ris nullius.” *Herm. Cyn.* p. 113. “Sapore subdulcis.” *Dale* 245. “Sapore  
 “viscoso; subdulci, cum levissima tamen acrimonia.” *Geoff.* ii. 79. “Saporis  
 “dulcis & parum viscosi.” *Nucl. Belg.* p. 140. “They have but little smell  
 “or taste.” *Miller, Bot.* 230. which is very true. — 2. They are anodyne ex-  
 ternally. “Podagræ confert, non sumptus modo, sed etiam cataplasmate ad-  
 “motus.” *Mesue* l. c. “Arthritide laborantibus Colchici radicem utilem esse  
 “Arabes scripsere, & nos aliqua ex parte experti sumus; sed tum cum forin-  
 “secus imponitur.” *R. H.* 1172. Internally they are nourishing. “Impin-  
 “guat, sperma auget . . . humore excrementoso & flatulento lædit ventricu-  
 “lum.” *Mesue*, l. c. “Mulieres pauperculæ sumptum pro aliis ferre ne-  
 “queunt, vulgares Hermodactylos, quibus communiter nostri pharmaco-  
 “polæ utuntur, modicè contostos, æque atque nos castaneas edimus, multos  
 “unica vice, ad impinguescendum, devorant, ex quibus neque alvus aliquo  
 “pacto turbatur, neque aliud quippiam mali accedit. Hinc nostri pharmaco-  
 “polæ scire possunt quantum illis, pro vero Hermodactylo utentes, hætenus  
 “erraverunt. Egoque hos non parum admiratus sum, quando Ægyptiæ  
 “mulieres

“ mulieres earum radicum per multos dies, ad decem, & plures etiam euntes  
 “ dormitum sumptisse, instarque castanearum comedisse, sine ulla noxa, ibi  
 “ sæpius compererim.” *Alpin. Med. Æg.* l. 4. c. 1. “ Et sunt illi ipsi qui ex  
 “ Ægypto Venetias eunt, inde ad nos.” *Hoffman.* p. 35. But—3. It does not  
 appear that they are purgative, being used only in compositions with other  
 cathartics. “ Non constat an certo purgent.” *Hoffman.* l. c. “ Docti viri  
 “ non exhibent substantiam Hermodactylorum; at crebro exhibent pilulas de  
 “ Hermodactylis.” *Fallop. de Purg.* l. 53. p. 121. Even *Mesue* says, “ Her-  
 “ modactylus . . . si cum scilla assata & zingiberi sumatur . . . purgat celerius  
 “ & plenius; per se enim tarde & imbecilliter vacuat.” l. c. And thus they  
 might pass for purgatives long enough, without sharing in the least of a pur-  
 gative virtue. “ Habent hoc vitium insigne, quod valide debilitant ventricu-  
 “ lum, ut fluxionibus recipiendis aptior sit, ut Paulus & Trallianus docent.  
 “ Hinc omnia corrigentia respiciunt excrementitiam illorum humiditatem,  
 “ cui siccandæ serviunt. Inter hæc præcipua est aloë ejusdem, Tralliani ex-  
 “ perimento.” *Hoffman.* l. c. Sure our Hermodactyls are dry enough; whe-  
 ther theirs were so I know not; yet they may blunt the appetite as china does,  
 and want aloë to make them purge.

“ Ex Hermodactylis analysi chymica multum phlegmatis, tum acidi, tum  
 “ urinosi, ac sulphuris extractum est, terræ plurimum, salis fixi quantitas exi-  
 “ gua: quæ sane demonstrant eorum vim a sulphure & sale ammoniaca, cum  
 “ paucis tartareo conjuncto pendere. (I suspect the analysis to be imaginary,  
 and though it were not, do not see how he draws such a consequence from it.  
*Vide Helleb.* p. 73.) . . . “ Siccati pituitam crassam, aliosque humores viscidos  
 “ peculiariter ab articulis trahunt, sed purgandi virtute donantur admodum  
 “ debili.” *Geoff.* ii. p. 80.

## S E C T. III.

The dose in substance is made to ʒij; in infusion to ʒß. The Caryocostium was the last composition wherein they were used; but this was thrown out of our Dispensatory anno 1735, and the Hermod. may very well follow it.

“ In substantia a ʒß. ad ʒij. exhibentur; in decocto ad ʒj.” *Geoff.* ii. 81.  
 “ Dosis ʒij. ʒiv. ʒij.” *Ph. Batæana.* “ Datur ab aur. i. ad aur. ij. Annos tres  
 “ servatur.” *Mesue,* l. c.

## J A L A P A.

## S E C T. I.

Jalapa, Jalapium, Mechoacana nigra, *offic.* Bryonia, Mechiocana nigricans, *B. P.* 293. *J. B.* 2. 151. Chelapo, vel Gelapa, *Ger.* 873. Mechoacana nigricans sive Jalapium, *Park.* 180. “ Convolvulus Americanus Jalapium dictus, *R. H.* 724. *Cod. Med.* lxii. Jalap—has a large solid root, in transverse slices, of a dark-brown colour on the outside; grayish within, full of black shining rosin, of a somewhat acrid or pungent taste, smelling a little disagreeably when powdered.

M̄r;



Mr. Tournefort, on F. Plumier's authority, taking it for a species of the *Mirabilis Peruviana*, called the Genus *Jalapa*, and the species of which he thought *Jalap* was the root, *Jalapa officinarum fructu rugoso*, *T. p. 130*. But Mr. Ray judged righter; for it is really a *convolvulus*, as the late Dr. William Howston assured me, who procured some plants of it from *Xalapa*, or *Xalappa*, in Mexico, and carried them to Jamaica, where I hope they still are: yet I hear some in America doubt it.

*Jalap* was first brought to Europe about the year 1610. "Ex India *Chelapæ* five *Celapæ* nomine, ante annos undecim, allata fuit. Ab Alexandrinis & Massiliensibus *Jalapium* vel *Gelapio* vocitatur: & a Massiliensibus *Mechoaca nigra* vel *mas* existimatur." *B. Prod. 135*; the Dedication whereof is dated *Idibus Martii 1620*. "Bryonia *Mechiocana nigricans*, quæ ex India *Chelapæ* five *Celapæ* nomine ante annos duodecim allata; & a Massiliensibus *Jalapium* vel *Gelapo* vocitatur." *B. P. 7. 98*. This *Pinax* was first printed in 1623: so that according to the *Prod.* *Jalap* came first to Europe in 1609; but according to the *Pinax* in 1611. "Bauhinus saith it was first brought to these parts eleven years before he set forth his *Prodromus*, so that was about 1611. (rather 1609.) It hath been little used here till within these ten years." *Johnson on Ger. 873. edit. 1633*. It takes its name from *Xalapa*, a town of Mexico. Dr. *Howston* called it *Convolvulus radice tuberosa cathartica*. *Vide Convolvulus in Muller's Diet. vol. ii.* "Nomen sumpsit a *Xalapa oppido Novæ Hispaniæ*: unde primum asportata fuit." *Geoff. ii. 82*. "There were imported at *Marseilles* preceding 1688. communibus annis, between 5000 and 10,000 lb. weight of *Jalap*, valued at 14 or 15 sols per lb. and consumed in France, Piedmont and Catalonia." *Sav. Diet. iii. p. 507*. "Refert Cl. Tournefortius post *Plumerium* & *Lignonium* ex America reduces, plantam cujus radices sub *Jalapæ* nomine usurpantur in officinis, similem esse illi quæ dicitur *Jalapa officinarum*, fructu rugoso, *Inst. R. H.*" *Geoff. ii. 82*. But the editor notes, "Verum & ipsi quoque in errore versati sunt. Namque *Houftonus* ex America redux, plantam *Jalapæ* secum asportatam ostendit Cl. vero D. Bernardo de *Jussieu*, Londini tum degenti: ipsi- que vera *Convolvuli* species esse visa est, non vero *Mirabilis Peruvianæ*." *Ibidem*.

## S E C T. II.

*Jalap* is a strong and efficacious purgative, evacuating chiefly watry humours; and is commended in dropsies, leucophlegmatia, gonorrhæa, and wherever such a hydragogue is wanted.

"Expurgat validè humores noxios omnes, imprimis autem serofos, idque citra molestiam. Dosis a ʒß. ad ʒß; in infusione a ʒiß. ad ʒij. *Præp.* 1. Extractum cum sp. vini. Dosis a ʒß. ad ʒj. 2. Magisterium: extrahitur sp. vini, & præcipitatur aqua. Dosis ad gr. xviii." *Schrod. p. 768*.

"Gustu est non ingrato & gummoso. . . Facultate albam *Mechoacam* superat: nam ob gummi copiosum fortius humores serofos purgat, cum imi ventris lævi dolore; & præcipuè viscera, hepar, & ventriculum roborat. Quare 3j. pondere exhibetur tuto, & sine fastidio opus suum exequitur." *B. Prod. p. 135*.

1. Although

1. Although it is not bitter, nor very acrid, yet, as Dr. Grew has it, “ it is pungent, the sensation whereof continues almost six minutes.” And elsewhere he says “ that Jalap, &c. being chewed, make little or no impression on the tongue, but their juice being swallowed, causeth a kind of pricking in the throat, as when one is provoked by a sharp rheum.” And I always observed it to affect more the sides of the root of the tongue, and the throat, than any other part of the mouth; and to draw plentifully the saliva.— 2. About  $\frac{1}{2}$  part of it is rosin. Vide Mr *Bolduc's Experiments on Jalap. Mem. Acad.* 1701. p. 139. &c. (I infused Jalapæ pulv.  $\text{℥}\beta$ . in sp. v. Gallici  $\text{℥}\text{viii}$  cold for three weeks, and there remained of the powder dried  $\text{z}\text{ij}$ . gr. xxiv. So thus were extracted  $\text{z}\text{j}$ . gr. xxxvi, which wants but 24 grains of all that spirit v. rectified, and water assisted by heat could separately extract.) According to *Bolduc's* experiments, Jalap  $\text{℥}\text{xij}$  yielded to sp. vini extracti resinosi  $\text{℥}\text{ij}$ ; there remaining of terrestrial parts  $\text{℥}\text{v}$ .  $\text{z}\text{j}$ : so that there were  $\text{z}\text{vij}$  evaporated. Again, Jalap.  $\text{℥}\text{xij}$  gave of extract with water  $\text{℥}\text{vi}\beta$ ; and from the residuum with sp. vini were got  $\text{z}\text{v}$  resinæ; which with  $\text{z}\text{ij}$  that adhered to the sides of the vessel, during the decoction with water, make resinæ  $\text{℥}\text{j}$ , which the water could not dissolve. Hence the saline and mucilaginous extract of Jalap contains one half of its rosin: or boiling water, assisted by its own salts, &c. can extract the half of its rosin. He adds, all the rosin had the same effect. The extract made with water first, given to  $\text{z}\beta$ , purged gently, and was weaker than the substance: but the extract from the residuum, after extracting the rosin with spirit of wine, purged very little, if at all, but was a strong diuretic.— 3. I have heard it said that Jalap, like barm or yeast, ferments liquors; I cannot assert it; but I know, that the fæces it carries off are commonly foamy or frothy, and sometimes seem to ferment.— 4. Though, by *Wepfer's* experiments (vide *Cicut. Aq.* p. 221) on puppies, it seems to inflame their stomachs; yet it was the rosin he gave and in too liberal a dose: for common experience has found it to be one of the safest of the strong cathartics. *Wedelius* gave Jalap. gr. ii. iii. yea iv frequently to infants two or three days old only, and that with good success. Vide *Opiolog.* p. 380. and *New Dispens.* p. 141. In *Boerb. Libel. de M. M.* it is one of the purgantia fortia, nec inflammantia: and Mr. *Bolduc* found it one of the best cathartics we have, needing neither stimulus nor corrector; and wonders it is so little used in France. In the *Hist. Acad. R.* 1701. p. 75. it is observed that Jalap is a good purgative, “ but much neglected, if it be not among empirics, who use it much, both because it costs little, and has good effects. It is surprising that the same reasons render not its use more general.” Thus the Academy. *Maregrave* in his *M. M. contraëta* (printed in 1681) calls Jalap *Hydropiccrum Panacea*. “ *Hydropicos una fere purgatione restitui aiunt.*” *Hoffm.* p. 15. (first printed in 1646.) “ *Sola Jalapii radice pauperibus (in gonorrhœa) aliquoties subveni.*” *Sydenham Epist.* 2. *respons.* p. 332.

“ Radix Jalapæ abundat sale acri uberrimo, acido vero pariori, cum sulphure & terrâ conjunctis. Horum principiorum commistio resinam & gummi constituunt, quæ magnâ copiâ ex hac radice siccâ extrahuntur. Nam Jalapæ pulveratæ  $\text{℥}\text{xij}$ . resinæ  $\text{℥}\text{ij}$ . extracti gummosæ  $\text{℥}\text{iv}$  suppeditant. Mediante vero distillatione, ex Jalapæ  $\text{lb}\text{ij}$ . olei  $\text{℥}\text{ix}$ . prodire, uberrimum phlegma alcalinum, quantitas vero minor acidi, quodque sese ob-



“scure tantum manifestum fecit. Adde infusum Jalapæ in aqua limpida  
 “chartæ subcæruleæ colorem magis vividum efficere.” *Geoff.* ii. 82; who af-  
 ter remarking on the different ways of correcting Jalap, judiciously adds (p. 85)  
 “Verum prorsus inutile mihi videtur catharticum medicamentum ægrotanti  
 “propinare, & ejus vim infringere. Satiù foret illud non exhibere. Acida  
 “revera cathartici vim minuunt, optimèque temperant; sed idem fieri potest  
 “purgantis dosim imminuendo, &c.

## S E C T. III.

It is given to ʒß. in powder, which is stronger than the decoction of ʒj. The preparations are, 1. Extractum; dose ad ʒj. 2. Resina; dose ad gr. x. 3. Tinctura; given to ʒß: which is the tincture of ʒj. in sp. vini Gallici: and 4. Tinct. composita made with brandy to ʒij. as a cathartic, with regard to the ingredients; though even on account of the menstrua this quantity cannot well be exceeded.

“Jalapa datur a ʒj. ad ʒiv. Morello; ad ʒij. Sennerto; a ʒß. ad ʒj. Hor-  
 “stio.” *S. Paul.* “Dosis ʒj. ʒj. ʒiv.” *Pb. Bateana.* “Datur ad ʒß. vel ʒj.  
 “& duplum in infuso, quod fieri debet in sp. vini.” *Nucl. Belg.* 148. “Ego  
 “hactenus in granis substiti & infra ʒj. accipio autem ʒj. integram dari solis  
 “hydropicis.” *Hoffm.* p. 15. “C. Bauhinus ejus dosim ad ʒj. constituit:  
 “sed C. Hoffmannus, Simon Pauli & meliores notæ medici infra gr. xxiv.  
 “subsistunt. Reverà Jalapa in substantia egregiè purgat sine molestia a gr. xii.  
 “ad ʒj.” *Geoff.* ii. 84. If the powder be long rubbed with sugar a kind of  
 emulsion may be made of it, with vinous or watry fluids, pretty cathartic.  
 Common brandy is the best menstruum for Jalap; it extracting both the  
 saline and resinous parts. The *London* tincture is drawn spiritu vini tenuiori;  
 but the extract first with rectified spirit and then with water, as ours is. Proof  
 spirits would do as well as both.

## I M P E R A T O R I A.

## S E C T. I.

Imperatoria, Astrantia, Magistrantia, *offic.* Imperatoria major, *B. P.* 156.  
*T.* 317. Imperatoria, *Dod.* 320. *Clus. H.* 2. 193. *Ger.* 1001. *J. B.* 3. 2. 137.  
*R. H.* 436. *M. U.* 77. I. five Astrantia vulgaris, *Park.* 942. *H. Ox.* 3. 278.  
 Imperatoria, *H. Cliff.* 103. Common Masterwort, or Bastard Pellitory of  
 Spain. — This has a long, finger-thick, creeping, jointed root, brown without,  
 white within, of a very biting and aromatic taste; and fragrant but somewhat  
 strong smell.

It grows spontaneously on the mountains of Austria, Styria, &c. In gardens  
 it flowers in July or August. “Imperatoria ob raras & præstantes facultates  
 “nominata fuit.” *B. P.* “Veteribus indicta videtur.” *R. H.* It is “Smyr-  
 “nion hortense, *Trag. Gesn. Hort.* Lapidium Germanicum, *Fuchs.* Lafer five  
 “Laserpitium. *Turn.* Struthion, *Cord. Hist.* Ligusticum. Aug.” in *B. P.*  
 Vide *Hoffman*, p. 265.

## S E C T. II.

This is a very hot stimulating attenuating diaphoretic, and carminative aromatic; called alexipharmic, cephalic and cordial; and commended in palsies, apoplexies, vertigos, indigestion, colics, asthmas, dropsies, catarrhs, quartans, malignant diseases, female obstructions, &c. And externally for the tooth-ach, fixed pains, cold tumors, &c. Cum angelica viribus convenit. The herb and seed are of the same nature.

“ Floret Augusto. *Officin.* Sola radix. *Vires.* Saporis est acerrimi; calf. & sicc. 3. Alexipharmaca & sudorifera est. Attenuat, aperit. *Ufus præcip.* venenatis morbis ac ictibus in pulmonum tartaro resolvendo, expectorando; in foetore anhelitus corrigendo; in capitis affectibus phlegmaticis, paralyti, apoplexia, &c. in cruditate ventriculi & colico dolore, in febris quartana: extrinsecus, in odontalgia (gargaris.) in catarrhis exsiccandis (suffitu), in tumoribus & arthritide frigida: in scabie capitis exsiccand. (lotione): in serpentine inveterata sananda, (cum adipe suillo illita): in globulis sagittive corpore extrahendis (imposita.) *Præp.* Aqua stillat: Ex herba florescente collecta Julio.” *Schroder*, p. 606.

1. The taste is very hot and biting: it soon raises a glowing through all the mouth, which lasts more than an hour, with an agreeable aromatic flavour. Its scent is also fragrant, but not quite so pleasant as that of angelica. “ Sapor est acris, aromaticus, calefaciens & vellicans linguam; odor fragrans.” *Herm. Cyn.* p. 20. “ Saporis est acris aromatici, odoris fragrantissimi.” *Dale*, 122. “ Saporis est aromatici valde acris & calidi; odoris pariter aromatici & grati.” *Nucl. Belg.* p. 149. “ Saporem est acerrimo, aromatico, vehementer linguam vellicante, totumque os calefaciente, odore fragrantissimo medicamentoso.” *Geoff.* ii. 87. — 2. It keeps well; and as in its botanical character, so in its qualities it comes near angelica. *Matthiolum* says, “ Zedoariæ facultatibus pollet.” p. 566. — “ Ut facie externa, & odore angelicam refert, ita iisdem cum illa facultatibus donata est.” *R. H.* 436. — “ Radices multo acriores sunt quæ in montibus eruuntur, quam quæ in planis. . . . Tragus ait calidiorem, & acriorem pipere esse, aliisque aromatis ut æquè corrosivum sit. . . . Cordus ex radice foliis, & caulibus dissectis, manare liquorem (Dodon. oleosum vocat) gustum acerrimum, tenuissimarum partium, qui tamen habent talem acredinem, qualem coccognidium, aut tithymali lac. . . . Non tamen est causticum. . . . Est inter potentissima sui generis remedia. Hinc ventriculo & intestinis refrigeratis, reddit opus suum. Hinc utero restituit debitos menses. Quosdam mares foecundos facit. Obstructiones viscerum expedit. In colicis & flatulosis est DIVINUM REMEDIUM, ultra certe & angelicam & zedoariam. In hydrope, in quartana, in febribus diuturnis omnibus non habet sibi parem medicinam, modo sint a frigore. Ignis enim purgatorii modo discutit. Est etiam apophlegmatizon, affectibus capitis frigidis, paralyti, apoplexiæ, &c. Summa est panacea empiricorum.” *Hoffman.* p. 266. See an instance of its effects in suffocatione uteri, in *Forest.* l. 28. *Obs.* 32. p. 676. It is certainly of great use in all diseases arising from an inertia solidorum, or a phlegmatica visciditas fluidorum.



“ Radix sicut & semen non mediocrem olei essentialis quantitatem distillatione fundit. Analyti chymica cum angelica convenit, quam superat odore fragrantiore, & acutiore gustu, sicut & virtutibus.” *Geoff.* ii. 88. Who analysed it?

## S E C T. III.

It is given in substance to ʒʒ; in infusion to ʒj. It is used in the aqua epidemica and theriacalis.

“ They are an excellent ingredient in the plague-water, and gives a very agreeable predominant taste to the composition.” *Quincy Ph.* 161. “ Dosis a ʒʒ: ad ʒj in substantia; & ad ʒij in infusione.” *Geoff.* ii. 88. Yet it is excluded the *London M. M.*

## I P E C A C U A N H A.

## S E C T. I.

Ipecacuanha, Radix Brasiliensis, *offic.* Ipecacuanha, *Pison.* 101. *Phil. Transf.* No. 238. p. 69. Ipecacoanha Brasiliensibus, *Markgrave*, p. 17. Herba Paris Brasiliiana polycoccus, *R. H.* 669. Periclymenum parvum Brasilianum alexipharmacum, *Pluk. Alm.* 288. Periclymeno accedens, planta Brasiliiana, flosculis congestis albis, *H. Ox.* 3. 535. Brazilian root, or Ipecacuan — is a long, wrinkled, and as it were geniculated root, with transverse furrows, about the thickness of a goose quill, containing under a thick cortical part, of a brownish colour, a whitish woody pith; it is of a subacid, bitterish, musty, nauseous taste, and earthy smell.

It grows in Brasil, and they say also in Peru. *Piso* says, “ Duæ ejus existunt species, neutra a nomine quod sciam descripta.” But on comparing his description with *Markgrave*’s, who died before *Piso* published his *Medicina Brasiliensis*, it is not improbable that *Markgrave* might have done it before him; at least *Markgrave*’s description is much more particular, and does not agree with *Piso*’s figure. *Markgrave* has but one Ipecacuan, *viz.* the above described. *Piso* has two, a brown, and a white; but by his description it cannot be determined whether they belong to the same genus. The *Hist. Acad. R.* for 1700. p. 59. makes three sorts of it; the white which is weakest, the brown which is the most violent; and the grey which keeps the middle between the other two. *Pere Labat* mentions and describes a gray, a white, and a black Ipecacuan. Vide *Savary Dict.* 3. 2. p. 188. And Mr. *Lemery* has four species, a brown, a reddish gray, an ashy-gray (*grise-cendre*) and a white. *Dict.* 280. Probably there is but one true Ipecacuan, *viz.* that brought from Brasil, which we use; the gray (which in France, they get) from Peru, being only a variety *à loco natali*; and the white some other root put off for *Piso*’s white Ipecacuan. “ Ipecacuanha cinerea; I. Peruviana, *offic.* fortè I. alba *Pisonis.* Radix est duas tresve lineas crassa, tortuosa, & quasi annulatim exasperata, dilutè fusca, vel cinerea, densa, dura, fragilis, resinosa, cum nervo exiguo, radicis medullium secundum longitudinem occupante; sapore sub-

“acri, amaricante, nonnihil odorata. . . Ipecacuanha fusca; I. Brasiliensis, & radix Brasiliensis, *offic.* Ipecacuanha altera, seu fusca Pisonis. Radix est tortuosa, rugis quasi annularibus magis exasperata quam cinerea, tenuior tamen, lineam crassa, foris fusca vel nigricans, intus alba, leviter amaricans. . . Ipecacuanha alba, seu potius Ipecacuanha adulterina. Radix est tenuis, lignosa, rugis carens, amaroris expers, & ex candido flavescens. Vomitus non excitat neque secessum. *Geoff.* ii. p. 90-1.

In *C. Linnei Gen. Plant. editionis 1737*, among the *Fragmenta Miscellanea*, No. 934. p. 378, there is one genus which he calls Ouragoga Ipecacuanha, *Markgr.* the character whereof he gives from a dried specimen, and Markgrave's description: and observes, “Hinc cum corno nihil habet commune.” The chamæperidymenum, *Ger.* 1296. being cornus herbacea, *Fl. Lap.* p. 36. and reckoned a kin to the Ipecacuanha, vide *Hist. Ox.* 3. 535. But in the *Gen. Pl. editio 2da*, *L. Bat.* 1742. there is no mention of Ouragoga, or Ipecacuanha. But in his *M. M. edit. Amstel.* 1749, it is a species of his Lonicera (*G. Pl.* p. 75.) and Ouragoga *H. Cl.* given as a synonymum: and in his *Spec. Plant.* Ipecacuanha is the nomen triviale of a species euphorbiæ, p. 455. All of which are equally uncertain.

Although Piso and Markgrave (in *Hist. Natur. Brasiliæ, edita Amstelod.* 1648, *in folio*) give the virtues of the Ipecacuan as fully and exactly almost as any author since, yet it seems to have been little used in Europe before the year 1700. Vide *Savary, Diët.* 2. 442. and 3. 2. p. 188. “Mr. Le Gras, physician, was the first who brought Ipecacuan to France.” *Lem. Diët.* p. 281. “Ipecacuanha, circa medium seculi præteriti, descripta fuit a Gulielmo Pifone, in sua Indiarum Historiâ; a quo tum, & a Marcgravio è Brasilia in Europam delata fuerat. Altis tamen tenebris obsita, & in Galliâ nostrâ incognita remanserat ad annum circiter 1672. quo cum D. Legras, medico, qui terram Americam peragraverat, Lutetiam pervenit. Verùm illius virtute nondum comperta satis, per plures annos, oblivioni tradita fuerat; usquedum circa annum 1686. à peregrino quodam mercatore, Garnerio dicto, iterum huc allatum est. Cùm autem vires illius singulares ab hoc mercatore predicarentur, ab Adriano Helvetio Facultatis Rhemensis medico in usum feliciter revocata est; ab eoque tantum thesaurum sibi & civibus comparare voluit. Ludovicus magnus, cujus munificentia publici juris factus est Ipecacuanhæ usus.” *Geoff.* ii. p. 89. According to Savary it was purchased from Helvetius in 1700. Vide *l. c.*

## S E C T. II.

It is an efficacious and safe emetic and cathartic; commended and used in the dysentery, fluxes, hæmorrhages, and wherever vomits are proper.

“Tandem ad decantatas has salutiferas radices ordo nos deducit, quæ præter facultatem purgatricem per superiora & inferiora, omni veneno eximie adversantur. Nec credo præstantius remedium adversus plurimos morbos, ex longa obstructione ortos, imprimis in ventris fluxibus medendis, in hisce terris reperiri facile, &c.” *Piso*, p. 101-2. “Radix recens, ut & siccata, superamari saporis, punget linguam sua acrimonia, proinde calidam in 2. gradu & siccam judico. Facultatem habet abstergerendi, meatus expurgandi,



“gandi, ac infarctus exsolvendi. *Ufus radicis.* Drachma una aut altera contunduntur, ac in poculo vini aqua mixti per noctem macerantur; mane leniter ebulliantur ac percolentur, bibit æger, per vomitum & secessum purgat, & non solum in dysenteria, sed etiam in affectibus ventriculi datur optimo successu. Quò autem recentior est radix eò fortior. In quibusdam plus superne quam inferne purgat.” *Maregravii Hist.* p. 17.

1. It is not very bitter, nor very acrid, but much more nauseous when swallowed than in the mouth. I poured boiling water on it, and when it had macerated two days, the infusion was very bitter and nauseous: a solutio vitrioli turned it to a blackish-green, but did not cause any precipitation. It only diluted the syr. violarum and tinct. heliotrop. and ol. tartari did not make it smell urinous. — 2. It suffers not much by drying. “Exsiccata in multos annos reservatur, nec facile vires deponit.” *Piso*, l. c. — 3. According to Mr. *Bolduc* “Ipecac. ℥viij. yielded to spirit of wine resinæ ʒvj. and the residuum to water extracti between ʒv and ʒvj: the remainder dried weighing ʒvj.” So that ʒβ was lost. But Ipecac. ℥viij. yielded first to water extracti ʒxj; and the dried residuum to spirit of wine resinæ ʒj. The resin is more violent than the substance; the extract milder, and purges gently: but the extract of the residuum, after the resin is separated, is only diuretic. The chymical analysis taught him nothing. Vide *Mem. Acad.* 1700. p. 3. & 1701. p. 246. “Utriusque quotidianus est usus, malunt tamen dilutum, quod vel unius noctis sub dio maceratione aut coctione in aqua, medicam suam virtutem abunde liquoribus communicet. Postea caput mortuum reservatum, denuoque eodem modo præparatum, in eundem usum exhibetur, minus quidem efficax ad purgandum, vel vomendum, sed magis astringens. Ita ut radix hæc non solum materiam morbificam, licet tenacissimam a parte affecta revellat, eamque per superiora expellat, sed & astringendo viscerum tonum restituat.” *Piso*, p. 102. — 4. “Now it is given, as an emetic in all cases where vomits are necessary, and by its kind and gentle working, not ruffling the patient, nor hurting the tone of the stomach, it has almost jostled all other emetics out of use.” *Miller Bot.* 244. It is exactly such an one as Dr. Sydenham wished-for. “Prætereundum non est, omnino tutum non est (saltem in hac febre) vomitoria ex infus. croci metallorum parata puerulis, aliisque infra adolescentiam constitutis, vel minima quantitate exhibere. Optarem equidem ut illius loco, alia nobis tutiora, sed satis interdum efficacia, suppeterent, quæ humorem hunc in febris declinatione, sere semper diarrhœam minitantem, radicitus extirpare possit.” *Sydenh.* p. 58.

“Those who powder a large quantity of Ipecacuan are subject to be troubled by the light dust that flies about, which entering their noses excites a considerable hæmorrhage. To prevent which it ought to be moistened with a little water.” *Lem. Diet.* 281. “Ea est Ipecacuanhæ, tum cinereæ, tum fuscæ, viscositas & acrimonia, ut si quis ejus lb. i. aut alteram contundat, nisi elatum pulverem caute devitet, paulo post difficili corripitur respiratione, sanguinis sputo, aut narium hæmorrhagiâ, vel oculorum aut faciei, nonnunquam etiam gulæ tumefactione & inflammatione afficiatur; quæ quidem symptomata intra paucos dies, aut per se, aut venæsectionis ope evanescent. Si in aquâ decoquatur, uberrimam mucaginem suppeditat; quæ tantæ est tenacitatis, ut per linteum decoctio nisi forti expressione  
“percolari

“percolari possit.” *Geoff.* ii. 92. “Frequens nunc est apud nos utriusque usus in alvi profluviis. Sed potissimum ad dysenteriam confirmatam sanandam felicissimè usurpatur. Nam sæpe incantamenti instar, eam intra unius dici spatium sanat.” *Ibid.*

## S E C T. III.

The dose is made generally to ʒj: but ʒß is enough in powder, and ʒj. in infusion. The tinctura Ipecac. may be given to ʒiß: which is the infusion of ʒj: though ʒj. seldom fails to operate sufficiently.

“Ejus in pulverem redactæ dosis est ʒj. in infuso plus minus ʒij.” *Piso* 102: *Markgrave* gave it also in infusion to ʒij. The dose in *Albin. M. S.* is à ʒß ad ʒj: in *Miller* it is ʒß, or in infusion ʒj. According to *Phil. Fred. Gmelin.* six grains of the cortical part given in powder, or infused for a night in wine, will vomit six, seven, or eight times. Vide *Epist. de Ipecac. Phil. Transf.* No. 476. Although all be powdered together, little of the woody part passes, being more fibrous. Hence in my *Index Med. Simpl. triplex* the dose is a ʒß ad ʒj. “Apud nos exhibetur pulverata a ʒß ad ʒß. . . . Experientia comperi Ipecacuanham ad gr. vi. vomitum perbellè provocare, & ad gr. x. non minùs vehementer, quàm ad ʒj. vel ʒij. Unde majorem dosim quam gr. vi. vel. x. inutilem censeo.” *Geoff.* ii. 94: who ordered it also refractâ dosi in the dysentery as an alterative. But I expect more from its cathartic, than alterative virtue: for allowing it to be as mucilaginous as he pleases, what can a grain or two of its mucilage do?

The vinum Ipecacuanhæ *Pb. Lond.* is thus made: “R Ipecac. radices ʒij. flaved. aurant. Hispanens. ʒß, vini Canarini lbii. Macera sine calore, & cola.” It is certainly more properly a vinum than tinctura? but vinum Hispanicum is preferable to the Canarium; macerating without heat, better than digestion; and orange peel is here useless. Our tinctura Ipecacuanhæ is stronger by one quarter than their vinum. It is thus prepared: “R Rad. Ipecac. pulv. ʒj, cochinnellæ ʒj, vini albi Hispanicæ lbj. Digere per biduum & filtra.” *Pb. Edinb.* p. 53. *N. B.* There is less danger in the excess of the powder, than of the wine.

## I R I S.

## S E C T. I.

1. Iris, Iris Florentina, Iris Illyrica, *offic.* Iris alba Florentina, *B. P.* 31. *T.* 358. *Park. Par.* 180. *H. Ox.* 2. 351. I. Florentina, *Ger.* 52. I. flore albo, *J. B.* 2. 719. *R. H.* 1180. Orris, Florentine Orris, or Flower-de-luce. — This has a large, tuberous, jointed root, brought to us dry from Leghorn in pared longer or shorter pieces, of a white colour both without and within, with some vestiges of the fibres, and of a bitterish rancid taste, and sweet violet smell.

It grows freely in Italy, and the more southern countries. In our gardens it flowers in June. It is used only dried.

2. Iris



2. *Iris Germanica*, *Iris nostras*, *offic.* *Iris vulgaris Germanica* sive *sylvestris*, *B. P.* 30. *T.* 358. *Ox.* 2. 350. *I. vulgaris violacea* sive *purpurea sylvestris*, *J. B.* 2. 709. *I. vulgaris*, *Ger.* 50. *R. H.* 1180. *I. purpurea* sive *vulgaris*, *Park. Par.* 181. *Iris corollis barbatis*, *caule foliis longiore*, *multiflore*, *H. Cliff.* 18. Common purple Flower-de-luce. — This has a root like the former, but larger, of a very acrid bitter, nauseous taste while recent, and an elder-like smell.

It grows in Germany, &c. In gardens it flowers in June. The recent succulent root only, or expressed juice is used, though but seldom. When dried it tastes like the Florentine, but wants its sweet smell.

3. *Acorus adulterinus*, *Pseudo Acorus*, *offic.* *Iris palustris lutea*, *Tab. Ic.* 643. *T.* 360. *Ger.* 50. *R. H.* 1186. *Syn.* 374. *I. palustris lutea* sive *Acorus adulterinus*, *J. B.* 2. 732. *H. Ox.* 2. 353. *Fl. Lap.* 14. *Iris foliis ensiformibus corollis imberbibus*, *petalis interioribus stigmatibus minoribus*, *H. Cliff.* 19. *Pseudoiris* sive *sylvestris*, *Iris lutea*, *Dod.* 248. *Acorus adulterinus*; *Iris* in maritimis nascens, a Theophrasto & Plinio improbata, *B. P.* 34. *Acorus palustris* sive *Pseudoiris*, & *Iris lutea palustris*, *Park.* 12. 19. Bastard Acorus, yellow Water-Flag, or yellow Water-Flower-de-luce. — It is the *Gladiolus luteus*, *Ph. Lond.* p. 10. Its root resembles the former, but is slenderer, of a brown colour on the outside, reddish within; of a very styptic, aluminous taste at first, but in a few minutes it raises a painful heat, and inflammation in the mouth, which continues six or eight hours, and longer if well chewed.

It is very common in marshy and moist places by river sides, &c. flowering in May. The juice is sometimes used.

“*Iris . . . floret diversi coloris specie sicut arcus cœlestis, unde & nomen.*” *Plin.* l. 21. c. 7. It is pretty well described by *Dioscorides* l. 1. c. 1. p. 4. “*Iris a cœlestis arcus similitudine nomen obtinuit. Folia fert Gladiolæ similia sed majora. . . Flores partim albi, partim pallentes, partim nigri, partim purpurei, partim denique cærulei conspiciuntur. Atque adeo propter hanc varietatem factum est ut planta ipsa Iridi cœlesti assimilata fuerit. Radices subjacent geniculatæ, solidæ, odoratæ. . . Veterascentes teredinum injuriam sentiunt: tunc tamen odoratiores reddi solent, &c.*” *Diosc.* who prefers not one species to another, but that of one country, to that of another. “*Prestantior Illyrica & Macedonia, secundum obtinet Africana.*” And that which is most odoriferous, and most bitter, to that which is less so; “*modo situm non redoleat.*”

“*Florentinæ Iridis flores tenui, sed eo tamen grato, odore præditi, lacteo candore perfusi sunt; radices vero majores, crassiores, solidiores, candidiores, & odoratiores deprehenduntur.*” *Geoff.* p. 99. vol. ii. “*Acori adulterini radix est nodosa, extus & intus rubra, odore nullo, imprimis cum adhuc viridis est, sapore primo quidem ignavo, qui post aliquod temporis spatium acrimoniam summam in ore relinquit.*” *Geoff.* ii. p. 5. Yet he takes *Dodonæus*’s word for it that it is only astringent. “*Tiguri aliquando degustavi flores, qui mihi tantum ardorem & fervorem excitarunt in faucibus ut summam acrimoniam vix potuerim mitigare oxycrato: radix autem insigniter astringit.*” *J. B.* 2. 733.

## S E C T. II.

The Florentine Orris root, as we have it, is emollient, detergent, diuretic, and laxative; called pectoral: and is commended for coughs, hoarseness, asthmas, and childrens gripes.

The common flower-de-luce green root, or its expressed juice, is a violent cathartic, irritating strongly so as frequently to inflame the stomach; called a hydragogue; and commended chiefly for dropries: But it is seldom used now-a-days.

The recent root and juice of the water-flag is of the same nature; but it is also strongly astringent; and when well dried, astringent only; which quality, perhaps, makes it preferable in hydropical cases, though to the full as dangerous as the former.

“ Iris Illyrica ac Florentina calf. & sicc. 2. incidit, attenuat, expectorat, digerit, abstergit, emollit. *Ufus præcip.* in mucilagine seu tartaro pulmonum, tussi, asthmate, obstructione mensium, torminibus ventris infantium. “ Extrinsicus abstergit cutis maculas, & lentigines (cum elleboro & melle mixta), oris foetorem emendat: celeberrimus usus modernis est in pulveribus qui capillis insperguntur; vulgus vocat pulveres de Cypro. *Præp.* “ 1. Extractum. 2. Species diaireos simpl. 3. Sp. diair. Salomonis.” *Schroder.* p. 607.

“ Iridis nostratis radix calf. & sicc. 3. Valde hydragoga est, ac errhina. “ *Ufus præcip.* in hydropicorum aqua educenda. Extrinsicus in impetiginibus, aliisque corporis maculis detergendis. N. Ventriculo reliquisque visceribus infensa est, proin corrigitur stomachicis. *Præp.* 1. Succus: exprimitur e radicibus, depuratur (digestione) adhibeturque recens pro hydragogo. Dosis “ ʒj ad ʒiij. 2. Fœcula: fit ex succo. Non æquè purgat ac ipsamet radix. “ 3. Oleum infusum.” *Schroder.* p. 607.

“ Acori adulterini radix officinis raro inservit usu. Exiccat, parum calefacit, attenuat, astringit, roborat, resolvit, vi peculiari ad nervosi generis & cerebri affectus commendatur, ut & ad dysenteriam, aliosque fluxus alvi ac uteri sistendos. Extrinsicus a dysenteriam præcavendam, more nostratum, de collo suspendi solet. Nonnunquam inde paratum extat *Eleæuarium* stomachicum.” *Schroder.* p. 526. But *N. B.* that,

There is a very great difference between the virtues of all these Irises when recent and succulent, or well and long dried; their acrid irritating cathartic quality being volatile and flying off in drying. And — 1. Although I have not tasted the recent root of either the Florentine or common Orris, the Acorus adulterinus having given me too much pain, on making the experiment, to desire to repeat it; yet there is reason to believe they are equally acrid. “ Narrabat mihi olim Val. Dourez; qui in Illyria sive Sclavonia fuerat, Iridem “ ibi dari flore albo potius quam purpureo, sponte in montibus provenire, & “ radicem similem Florentinæ virentem gustu esse, non minus ferventi quam “ nostras.” *J. B.* 2. 720. “ Iris vulgaris . . . graviter tota herba, & ut sambucus fere, cum teritur, spirat, præsertim radix, quæ etiam gustata, cocognidii modo, fauces exurit.” *E Cord. Hist. J. B.* 2. 709. When dried, both taste and smell is much the same, only the Florentine is much sweeter



scented : and scarcely can be called a different species. The bastard *Acorus* is indeed evidently a different species; has a different smell when green; and is strongly astringent, which the others are not. — 2. The juice or recent root of any of them purges violently, raising intense heat, thirst, and sometimes dangerous inflammations. “*Ha est succi acrimonia, ut sæpe ardores accendat, non tantum in faucibus, sed etiam in ventriculo & visceribus: unde plurimi hoc hydragogum reformidant.*” *Geoff.* ii. 101. When fully dried, the first two are only laxative for children, and constitutions easily moved; and the third is strongly astringent. Hence all the differences and seeming contradictions among authors, with relation to the temperament and virtues of these roots, as well as their doses, are easily accounted for and reconciled. “*Calida ne an frigida sit A. adulterini radix, inter botanicos non bene venit.*” *R. H.* 1186. where (or *Pb. Transf.* No. 117) see how the Highlanders make ink with it. — 3. *Iris* was much commended and used by the ancients. “*Vim habent omnes excalectoriam, attenuantem, & contra tusses efficacem. . . Crassos biliososque humores, ex multa ʒvij pondere, potæ purgant: somnum quoque conciliant, lachrymasque cient, & torminibus inedentur. Eadem ex aceto potæ venenatorum moribus auxiliantur: itemque lienosis, convulsis, perfrigeratis aut rigentibus, iisque quibus genitura effluit: ex vino vero bibitæ menses ducunt.*” *Dioscorid.* (l. 1. p. 5.) who after commending them externally for the ischiatica, fistulæ, strumæ, inveterati scirrhi, ulcera, ossa nudata, cephalalgia, lentigines, &c. concludes, “*Ac in univèrsum ad multa sunt utilissimæ.*” According to *Herm.* and *Albin. M.S.S.* *Orris* communicates its smell to the urine. For the hydragogue virtue of the *Pseudo-acorus* vide *Med. Eff.* vol. 5. art. viii. Mr. *Geoffrey* gives neither real nor imaginary analysis of any *Iris*.

“*Purgat primariò pituitam & aquas: secundariò bilem, non contra, ut errabundus Lob. stylus habet. Hodie fere solus frequentatur in hydropicis. In quibus cum sæpè ardores faciat, non in faucibus tantum; sed & in toto corpore quidem prorsus abhorrent ab illo. Sed distinctione opus est: in Germanica id fieri verisimile est; in Florentina non est. Deinde verum est de succo crudo, per residentiam non depurato. Corrigitur saccharo, manna, melle rosarum, &c. Alioqui sicca purgat Agarici modo, ut Paulus scribit.*” Vide *Hoffman*, p. 36, 7, 8. on its qualities, doses, &c. *Ray* (*H.* 1181.) says, “*Honestà matrona mihi nota se plures hydropicos curasse affirmavit solo usu hujusce succi, exhibendo quotidie mane jejuno cochlearia iv. in cochl. vi. vini albi.*” And *Lister* (*de Hydrope*, p. 22.) observes, “*Iridis succus aquas validissime movet; imo sanguinem, inquit Ruf. si præter modum dederis, trahit: quod tamen nondum expertus sum, etiamsi sæpius in hoc malo, æque ac in aliis, quibus bene facit ad ʒiij. iv. v. dederim. An forte quod Iridis succus apud nos nutritæ mitior sit.*”

“*Pseudacori radix est nodosa, extus & intus rubra, imprimis cum adhuc viridis est, odore nullo, sapore quidem ignavo, qui ut Pena notavit, post aliquod temporis spatium, acrimoniam aliquam in ore relinquit. Calidus est in primo forte gradu; siccus in 2.*” *Hoffman.* p. 90.

## S E C T. III.

The Florentine Orris root is given to  $\zeta j$ : the juice of the other two, as a hydragogue purge, to  $\xi ij$ . But it is safer to use them as a stimulus, and begin with  $\zeta ij$ , increasing and repeating the dose pro re nata.

*Dioscorides* gives  $\gamma vij$  in mulla: *Pliny*  $\zeta ij$  cum melle: *Paulus*  $\vartheta iv$ : *Mesue* a  $\zeta ij$  ad  $\gamma vj$ : *Lob.* ad  $\zeta ij$ . In diluto ad  $\zeta iv$ . ascendi potest. Vide *Hoffman.* p. 38.

Succus radicis “datur ad  $\gamma vj$  Trincavellio; ad  $\xi iv$  Maffario; ad  $\xi j$  Duncan, Morello, Claudino; ad  $\xi \beta$  Heurnio; ad  $\xi iij$  Sennerto.” *Sim. Pauli.* “Amatus dat ad  $\xi j$ : Lobelius ad  $\xi ij$ : Jacch. ad  $\xi iij$ : Braff. ad  $\xi iv$ . Crudus & totus cum residua coctus non datur ultra  $\xi ij$ .” *Hoffm.* p. 38. “Radix Iridis Florentinae dosis est a  $\vartheta j$ . ad  $\gamma j$ . Iridis nostratis succus depuratus in hydropo ad  $\xi ij$ . vel  $\xi iij$ , solus aut cum vino albo permistus, manè, jejuno ventriculo, alternis diebus sumptis commendatur.” *Geoff.* ii. p. 99 & 101. *N. B.* A warm digestion may mitigate its violence; much more may a decoction do it.

## L I G U S T I C U M.

## S E C T. I.

Ligusticum, Libysticum, vel Levisticum, *offic.* Ligusticum vulgare; an Libanotis fertilis Theophrasti? *B. P.* 157. Ligusticum vulgare foliis Apii, *J. B.* 3. 2. 122. Levisticum vulgare, *Dod.* 311. *Ger.* 1008. *Park.* 936. *R. H.* 437. *H. Ox.* 3. 275. Ligusticum, *M. U.* 7. Angelica montana perennis, Paludarii folio, *T.* 313. Ligusticum foliis multiplicibus, foliolis superne incisis, *H. Cliff.* 97. Lovage. — This has large, thick, and divided roots, of a dark-brown colour on the outside, whitish or pale within, of a hot, biting, sweetish aromatic taste, and strong smell.

It grows spontaneously on the mountains of Italy, &c. In our gardens it flowers in July. The herb and seeds are equally medicinal. It is an oblong brown seed, striated on one side, plain on the other, tasting like the root, but not so strong scented. The leaves, or herb, are the most fetid part.

It is not the Ligusticum, or Libysticum antiquorum, nor is it certain how they called it. Some call it Laserpitium, others Smyrnium, others Hippofelinum. Vide *B. P.* “Hoc procul dubio factum est a Libystico Galeni, quod est Ligusticum Dioscoridis, ita dictum, quod in Apennino qua parte Liguriam attingit, frequens est. Sub hujus nomine in officinis tres sunt partes, “Radix, folia, semen.” *Hoffman.* p. 300.

## S E C T. II.

It agrees in virtues with imperatoria, only it is not so hot, though more strongly odoriferous; and is commended chiefly in the diseases peculiar to the female sex, (tam internè quàm externè) as obstructions, &c.



“ *Officin. nat.* Folia, radix, semen. *Vires.* Calfacit & siccat 3. incidit, aperit, alexipharmacum est ac diureticum, vulnerariumque. Ventriculum roborat, asthmatis subvenit, menses & lochia ciet, fœtum mortuum ejecit (semen); tartarum lentum resolvit, doloresque inde natos sedat; epatis, lienisque obstructions referat, adeoque præcipuè ictero convenit. Extrinsecus usus ejus celeberrimus in balneis, cataplasmatibus, utero & ureteribus dictis, in emplastris vulnerariis & similibus. *Præp.* 1. Aqua stillat. ex integra herba cum radicibus. 2. Oleum stillat. 3. Sal ex cinere.” *Schroder.* p. 614. “In facultatibus tam est vicinum angelicæ & imperatoriæ supra dictis, ut non putem necessariam esse commemorationem.” *Hoffman.* p. 300.

“The whole plant and every part of it, says *Parkinson*, smelleth somewhat strongly and aromatically; and is of a hot, sharp, biting taste.” It abounds with a gummi-resinous yellow juice, somewhat resembling opoponax. It is commended internally in mensibus obstructis, partu difficili, retentis secundinis aut lochiis, doloribus post partum, fluore albo; also for cold and windy stomachs, vertigoes, asthmas, suppression of urine, jaundice, vapours, spleen, &c. and externally as proper to be put in menagogue fomentations, baths, &c. *Forestus* (l. 28. *Obs.* 32. *in Schol.*) says he has known a little Lovage seed chewed and swallowed, remove a suffocatio uteri: and then discloses an arcanum for this disease, as well as for hard and difficult labour, whether from a dead child or false conception, for retention of the secundines, &c. which he learned from a midwife, who had it of a Jewish physician; “atque expertum dicitur in iis quæ per 14 dies & plures, secundinam a partii retentioni habuere, quæ neque ullis modis ab ea exonerari poterant, ut extrema inunctione inunctæ, animam exhalaturæ viderentur.” The secret is a cyathus of a mixture of the juice fol. Levistici, and Rhenish wine, in summer time; or the seed bruised and decocted in wine, or aq. artemisiæ, in winter. “Subibat folia Levistici viridia, contundebat, & succum exprimebat, cum vino optimo Rhenensi; ejus cyathum unum propinabat. In hyeme vero contundebat semina ejusdem & modicè in vino ebulliebat, demum colabat cum expressione; vel in aqua artemisiæ bullita & expressa, exhibebat quam felicissime.” *Forest.* l. c. “*Forestus* pro secreto habuit succum foliorum Levistici recentium in secundinis retentis. ad ʒiij. Solum vel cum aqua artemisiæ propinabat. Hyeme vero semen in aq. artemisiæ ad ʒß: contusum, & aliquantisper ebullitum præscribit, & colaturam propinat.” *Geoff.* iii. 714. *III quoted.* His analysis (p. 713) seems to be imaginary. “Cum odor adeo validus & pertinax sit, præ angelicâ & imperatoriâ, verisimile est eam viribus etiam eisdem antecellere.” *R. H.* 438.

### S E C T. III.

This may be given to ʒj; in infusion to ʒij. The seed is an ingredient in the aqua bryeniæ composita.

“Datur a ʒj. ad ʒij; in infuso & decocto ad ʒiv. & Rad Levistici pulv. ʒß: succi ʒß: & exhibe ad Lochia promovenda. Fuit secretum matronæ cujusdam.” *Herm. M. S.* “Datur in substantia a ʒß ad ʒj: in infuso ex vino ad ʒß.” *Albin. M. S.* “Radix pulverata ad ʒß. vel ʒj. exhibetur; semen a ʒj. ad ʒß.” *Geoff.* iii. 713.

## L I L I U M.

## S E C T. I.

Lilium, Lilium album, *offic.* Lilium album flore erecto & vulgare, *B. P.* 76. Lilium album vulgare, *J. B.* 2. 685. *T.* 369. L. candidum, *Dod.* 197. L. album vulgare & odoratum flore erecto, *H. Ox.* 2. 409. Lilium foliis sparsis, corollis campanulatis, intus glabris, *H. Cliff.* 120. Common white Lilly. — The root is a large scaly bulb of a yellowish-white colour, a disagreeable viscous and somewhat bitterish taste, and soft smell. The flowers taste like the root; but smell very sweet.

It is, as they say, a native of Syria and the neighbouring countries. In our gardens it flowers in July, seldom in June here; but never ripens the seed." "Lilii albi caulis cum floribus amputatus & suspensus, auctore Gesnero, semen profert: quod feliciter etiam Parisiis sæpe expertus sum." *T.* 371. *Ufu.* Radix & flores.

Lilium comes à λειριον, or λειριον: it is called also in Greek κρινον; which name, as Lilly is with us, was given to Narcissus, Hyacinthus, Iris. Vide *Bed.* in *Theophrasti.* p. 654. Although *Dioscorides* does not describe the κρινον; yet *Pliny* (l. 21. c. 5. p. 544) mentions its height *cubitorum trium*, its *candor eximius*; its figure, & *croci* in medio. Was not his Lilium album the same with ours? Canit *Ovid.*

"Dum puer Alcides Divæ vagus ubera suxit  
 "Junonis, dulci pressa sapore fuit;  
 "Ambrosiumque alto lac destillavit Olympo  
 "In terras fufum Lilia pulchra dedit."

## S E C T. II.

The roots are abstergent, alcalescent, emollient, anodyne, maturant, and laxative; but used almost only externally in cataplasms, ointments, clysters, to ease pain, ripen or discuss tumors, cleanse the skin, &c. We have an oleum florum coctione paratum. The root is also used sometimes in the oleum mucaginum, and cataplas. suppurans.

"*Officin. nat.* Flores, radix, stamina: *Vires.* Flores moderate calefaciunt & humectant: partium sunt diversarum, & anodynæ; digerunt, maturant. Radix abstergit, & siccat 1. digerit itidem, emollit, maturat. *Ufus* internus rarus est; externus crebrior; isque tumoribus maturandis & leniendis, in clavis pedum, &c. sanandis, in pudendis parturientium molliendis, in ambustis emendandis, &c. Stamina exhibentur ad facilitandum partum cum aq. verbenæ vel simili. *Præp.* 1. Conserva florum. 2. Aqua ex florum foliis recentibus. *Ufus* est crebri in affectibus pulmonum, asthmate, tussi, & similibus. Extrinsecus in facie dealbanda cum camphora & oleo tartari. 3. Oleum florum infusum. 4. Oleum compositum." *Schroder.* p. 615.

1. They



1. They are viscid and nauseous; and soon putrify in water, and become abominably fetid: so that they are alcalescent and saponaceous. — 2. They dis-  
cuss or suppurate according to the nature of the tumor: probably they would  
purge inwardly taken. “The root stamped and strained with wine, and given  
“to drink for two or three days together, expelleth the poison of the pesti-  
“lence, and causeth it to break forth in the blisters in the outward part of the  
“skin; according to the experience of a learned gentleman Mr. William Go-  
“dorus, seargeant-surgeon to the Queen’s Majesty. Who also hath cured many  
“of the dropsy, with the juice thereof tempered with barley meal, and baked  
“in cakes, and so eaten ordinarily for some months or six weeks together  
“with meat, but no other bread during that time.” *Ger.* 191. — 3. I poured  
boiling water on the flowers; and after two days maceration the infusion was  
of a nauseous bitter taste, did not redden the syr. violarum nor (the tinct. or  
rather) solutio heliotropii. Solutio vitrioli gave a dark greenish brown colour  
without precipitating. See Mr. *Geoffroy* iii. 722. for an imagined analysis. His  
caution concerning the oil, and much more, is transcribed from *R. H.* unnamed,  
as is usual. Our ol. Lil. alborum is prepared by coction, so can have nothing  
of the sweet smell of the Lilly.

## MANDRAGORA.

### S E C T. I.

*Mandragora, offic.* *Mandragora fructu rotundo*, *B. P.* 169. *T.* 76. *R. H.* 668. *M. fructu majore*, *B. P. H. Ox.* 3. 531. *Mandragora*, *Dod.* 457. *M. mas*, *Ger.* 352. *J. B.* 3. 617. *M. mas vulgator*, *Park.* 343. *Mandra-  
gora*, *H. Cliff.* 57. The male Mandrake. — This has a very large and long  
root, “sometimes single and sometimes divided into two or three parts,”  
*Miller Bot.* brownish on the outside, white within; of a subviscid, bitter and  
nauseous taste; and soporiferous smell, as is commonly said.

It grows in Spain, Italy, Candy, &c. in woody and shady places, flowering  
in May. The root, or cortex radicis, and leaves are reckoned medicinal.  
“Ufus est in officinis tantum corticum radicis Mandragoræ utriusque, ut &  
“succus ex illis expressi.” *Hoffman.* p. 327. “Utriusque folia & radices, vel  
“potius radicum cortices, usitata sunt.” *Geoff.* iii. 809. — The other is

*Mandragora fœmina seu nigra, offic.* *Geoff.* iii. 808. *Mandragora*, flore  
subcœruleo purpurascente, *B. P.* 169. *T.* 76. *H. Ox.* 3. 531. *M. fœmina*,  
*Clus. H.* 2. 87. *J. B.* 3. 618. *R. H.* 669. *Mandragoras fœmina*, *Ger.* 352.  
*Park.* p. 378. Varietas est tantum *Linnaeo*. The female Mandrake. — It has  
a root like the male’s. But neither root nor leaves are so fetid or strong  
smelled as authors make them.

Botanists are generally agreed that these are the *Mandragoræ mas* & *fœ-  
mina Dioscoridis* l. 4. c. 76. p. 273. As what relates to the third *Mandragora*,  
it is supposed to be a spurious addition, being in none of the ancient MSS.  
neither in Pliny, nor Oribasius: but the *Mandragora* of Theophrastus is a dif-  
ferent plant, and probably the *Solanum melanocephalos* *B. P.* Vide *Bod. in  
Theophr.* p. 583. “Plinio l. 29. c. 13, *Mandragora alia candida mas, alia*

“nigra scœmina. M. Theophrast. 6 hist. 2. 9 hist. 9. & 6 caus. 4. Mandragora a prædictis diversa est.” B. P. Hoffman thinks otherwise, vide p. 327. §. 4. What the *Dudaim*, S. S. was, which the Seveniy translate Mandragora, seems to be altogether unknown. Celsus makes it Musa Serapionis, or Plantain-tree.

Mandragora seems to be compounded of *μανδρα*, mandra, stabulum, spelunca, and *ἀγροα* forum, or *γρας*, præmium, honor, quasi speluncarum honos, a loco natali, “quod ad mandras pecorum, aliasque speluncas proveniat.” Circæa vocatur a Circe, “quoniam radix ad amatoria conducere videatur.” B. P. 868. “*Μανδρα* quid scit scio, quid item *ἀγροα*: sed quid *μανδραγορα*, aut *μανδραγορας* (δ) nescio; adeoque venio in eas cogitationes, non esse Græcum, sed Barbarum. Neque tamen subito credo Geropio qui Germanicum esse, quasi Man-dragen (i. e. hominigeram J. B.) vult. Non credo etiam Pythagoram vocasse *ἀνθρωπομορφον*.” Hoffman. p. 326. Vide Bod. in Theoph. p. 584. or Denfingii Dissert. de Mandragora, in his *Fasciculus Dissertationum selectarum*, Groningæ 1660. in 12mo. beginning p. 571. and ending p. 598. The foolish superstitious ceremonies with which this root (among others) was taken up of old; and the supposed virtues of the Mandrakes against barrenness, gave occasion to some cunning mountebanks and jugglers to impose in a very extraordinary manner on the credulous vulgar. Read Matthioli in Dioscorid. p. 760: and Denfingius de Mandragoræ Mangoniis, l. c. p. 586. and if you are not diverted with the *Pisse-diesies*, or *hemunculi ex urina suspensi furis enati*; you must be surprised at the impudence of attempting such a cheat. “Addendum quæ præterea in colligendis plantis pharmacopolæ & (ρίζοττοι) herbarii, partim vere, ni fallor, aiunt, partim tragicis proferunt aggerationibus.” (Then after observing what way the Thapsia, Cynosbatus Fructus, Elleborus, Pæonia, Centaurium, Panaces, and Xiris, are to be managed according to them, he goes on) “Mandragoram quoque ense ter circumscribere jubent; & alterum succidere ad occasum spectando; alterum circumsaltare, plurimaque de re venerea dicere.” Vide Theoph. l. 9. c. 9. p. 1041. and Bod. commentary on it. So that Josephus could not be the author anilium illarum nugarum. Vide Geoff. iii. 811.

## S E C T. II.

It is reckoned anodyne, narcotic and cathartic; and commended for the epilepsy. But it is used externally only now, as anodyne and discutient, for inflammations, strumous and scirrhus swellings, &c. ut cynoglossum.

“Cortex radices refrigerat 3. siccatur 1. emollit mire, narcoticus est ac soporiferus, rarus usus intrinsecus. Extrinsecus usus ejus est in oculorum rubore ac dolore, in erysipellate, in tumoribus duris, struma, &c. Præp. Oleum: fit ex decoctis corticibus, aliorumque narcoticorum succis, atque oleo.” Schroder. p. 621.

1. It is said to be not only viscid, bitter, and nauseous, but also to have a strong soporiferous scent, which affects the head like other narcotics. “Folia sunt narcotici foetitique odoris. Fructus maturus suavè olet; aut, ut magis propriè loquar, præ nimia suavitate, melonum adinstar nimis maturo-  
“rum.”



“rum, ingratus fit noxiusque.” *H. Ox.* l. c. “Radix . . . odore ingrato, viroso, caput feriente & narcotico.” *Herm. Cyn.* p. 180. “Folia & radices odorem virosum, ingratum, & caput ferientem exhalant. Radicis cortices exsiccati saporem acrem, amaricantem, nauseosum, cum quodam lentore, & in recessu stypticitate referunt. Fructus odoris gravis, virosi.” *Geoff.* iii. p. 808. 810. I poured boiling water on the leaves *M. foeminae*, and after two days maceration, the infusion was little tintured, but of a bitter nauseous taste. It only diluted syr. violarum; reduced the tinct. succi heliotropii; and turned a solution of vitriol turbid and of a dark greenish colour, occasioning but little precipitation.—2. It is said to ease pain, soften and discuss externally; and internally to be soporiferous, narcotic, and violently cathartic; to cause spasms, convulsions. &c. “Aliqui radices in vino ad tertias decoquant, excolatumque jus asservant, ejusque cyathum j. propinant in pervigiis, gravioribusque partium quarumvis doloribus; itemque ante sectiones ultionese, ut ne sentiantur.” (He says the same of the wine prepared without coction given ad cyath. iij.) “Ipse vero liquor (ὀπτος) binis obolis, ex aqua multa potus veratri instar supernè pituitam, bilemque atram extrahit: at potu largiore vitam adimit. Radix ebur emollire fertur. . . Folia durities omnes, apostemata, strumas & tubercula discutiunt, &c.” Vide *Dioscorid.* l. c. and *Alexiph.* c. 16. p. 408. for its noxae & remedia. “Rhasis apud Serapionem scribit, vidisse se, qui poma Mandragoræ comederunt, tota facie rubundos, atque si balneo egressi multum vini bibissent.” *Hoffman.* p. 328. N<sup>o</sup>. 13. But “Jo. Faber Lynceus, Romæ simplicium Professor, eat a large Mandrake apple, seeds and all coram auditoribus suis, jejunos, in the morning, without sleep or any bad effect following; as Jo. Terentius in notis in Hernandez, relates. Idem experimentum se quoque persæpe fecisse testatur Jo. Terentius.” *R. H.* 669. In a word, this plant probably is purgative; but I can assert nothing positively concerning it.

“Analyti chymica, Mandr. foliorum recentium lbv. præbuerunt humorum lbiv. 3x. 3vj. gr. ix. (of which the first 3xxix. odorem & saporem ingratum virosum referebant, primò obscurè subsalsæ & subacidæ, deinde acidæ); salis vol. urinosi 3ij. gr. x; olei spissi 3x. Carbonis fuere 3ij. 3vj. gr. lx. unde cinerum 3j. 3iiis: & inde salis fixi alcali 3ij. gr. viij. (ergo terræ 3j. gr. xxviij.) & jactura fuit 3v. gr. lxv.”

“Radicum recentium lbv. præbuerunt humorum lbiv. 3vj. gr. xiv. (whereof the first 34 ounces were foetentis & virosi odoris & saporis ad cicutam accedentis, obscurè subsalsæ & obscurè acidæ;) salis vol. urinosi gr. x; olei spissi 3j. 3ij. gr. iv. Carbonis fuerunt 3v. 3j; unde cinerum 3ix. gr. xlii: & inde salis fixi alcali 3ij. gr. xxvj. (ergo terræ 3vj. gr. xvj.) ac jactura fuit 3ij. 3ij. gr. xlv.” *Geoff.* iii. p. 809.

The stratagem whereby Hannibal overcame the rebel Africans, as related by Julius Frontinus, (vide *Bod. in Theophr.* p. 584. 2.) is said to have been imitated by the Scots against the Norwegians, under their King Sweno (brother to Canute who conquered England) and with equal success. Vide *Buchan. Hist.* l. 7. in *Vita Regis Duncani*.

It was an ingredient in the ung. populeon; viz. the folia; for which the fol. sambuci montani were the succedaneum, the Mandrake being but a rare plant.

plant. But in the three last editions *Pharm. Edinb.* it is left out altogether; and it is now used no way here.

“Datur tantum robustioribus, & cum circumspeditione.” *Herman. M. S.*  
 “Non datur nisi robustioribus, & raro quidem, ac magna cum circumspec-  
 “tione, quia convulsiones aliquando parit. Dosis in substantia a ℥ss ad ℥j.  
 “in infuso ad ℥ij.” *Albin. M. S.* There is a Mandragora ordered in several  
 places of Hippocrates. “Tristes, anxios, & ægrotos, ac se strangulare volen-  
 “tes, Mandragoræ radice mane in potu data, minore pondere quam quod  
 “insanire facit, curabis.” *Hippocrat. ed. Lindensf. p. 391. §. 48. c* Locis in  
 Homine. Lib. genuinus consulatur. *Geoff. iii. p. 812.*

## MECHOACANA.

### S E C T. I.

Mechoacana, Mechoacana alba, *offic.* Convolvulus Americanus Mechoacan dictus, *R. H. 723. T. 84.* Mechoacan, *J. B. 2. 149. Ger. 873.* Jeticucu (Brasilienfis) seu Radix Mechoacan, *Marcgr. p. 41.* Jeticucu sive Mechua-can, *Piso 93.* Bryonia, Mechoacana alba, *B. P. 297.* Bryonia alba Peruana, sive Mechoacan, *Park. 179.* Mechoacan Monard. *Clus. Exot. p. 337.* Mechoacan. — The root is large, white, softish, and of little taste or smell: It is brought to us in slices of different sizes.

It grows in Mechoacan, a province of Mexico, and several other places of America. It seems first to have come into use about the year 1532, or 1540. “Mechoacan radix est ante triginta annos primum reperta, in provincia Me-  
 “choacan dicta, 40 milliaribus supra Mexico, quam devicit Ferdinandus Cor-  
 “tesius anno 1524.” *Monard. l. c.* whose simplicium Historia in two parts came out in Spanish anno 1569. “Mechoacanna, primum innotescere cœpit  
 “circa annum 1524. Sed potissimum a Nic. Monardo promulgata fuit.” *Geoff. ii. 102.*

### S E C T. II.

It is a gentle purgative, and diuretic, safe for infants, but little used.

“Pituitosos, aquosos, serososque humores, ex toto corpore ac imprimis ex  
 “capite ac nervoso genere, pectoreque blande ac sine molestia educit. Utilissi-  
 “mum itaque remedium est in catarrhis, ac inde ortis affectibus, in hydropē,  
 “in omnibus arthritidis speciebus, lue venerea, & similibus. Quia tamen  
 “calida & sicca est, in calidis constitutionibus, ejus usus ne sit continuus.  
 “Dosis infantibus ℥j. præterpropter: adultis a ʒj. ad ʒij. in infusione ad ʒss.  
 “*Præp.* Extractum simplex & compositum.” *Schrod. p. 769.*

1. Although at first it appears insipid; yet at length whoever chews it will discover a sort of pungency like that of jalap, which will make him spit plentifully. “Insipida est & sine acrimonia.” *Monard. l. c.* “Saporis fere nul-  
 “lius.” *Nucl. Belg. 189.* “It has little smell or taste.” *Miller Bot. 288.*  
 “Sapore subdulci, cum obscura quadam acredine, quæ nauseam quandoque  
 “mouet; nec amara nec virosa est.” *Geoff. ii. 101.* At first it was kept bu-  
 VOL. I. Q q q ried



ried in millet seed, to prevent its losing its virtues : but they don't appear to be volatile : at least it tastes as well when old and worm-eaten, as the freshest I have seen. — 2. Mechoacan.  $\zeta$ iv. yield to sp. vini resinæ  $\zeta$ j. only ; and the residuum to water extracti  $\zeta$ j. But  $\zeta$ iv. first extracted with water gives extracti  $\zeta$ iß. the residuum containing nothing of rosin which sp. vini can extract. Vide *Bolduc, Mem. Acad.* 1711. p. 104. &c. The analysis, he says, taught nothing, save only that the acid spirit exceeded the urinous. Hence Mechoacan does not contain the fifth part of the rosin which jalap contains ; and yet yields about a third less of saline and mucilaginous parts. — 3. Mechoacan was introduced into Europe, with encomiums ; and there was great demand for it. It was reckoned in a manner a panchymagogue, stomachic, hepatic, splenic, aperient, &c. and commended in the jaundice, dropsy, head-ach, epilepsy, scrophulæ, rheumatism, gout, gravel, coughs, asthma, agues, lues venerea, female diseases, &c. See *Monard.* l. c. But so soon as jalap came to be known, Mechoacan fell into disuse, and now we can scarcely get a tolerable specimen of it. The manner how the Spaniards came to the knowledge of it, as related by Monardes, shews that the Americans were better Christians than the Spaniards.

## S E C T. III.

It was given to  $\zeta$ ij in substance, &c. and to  $\zeta$ iß in infusion. *Monardes*, who first wrote of it, is generally followed in the virtues and dose. Soon after him *Ægidius Everartus* and *Marcellus Donatus* wrote little treatises on it. “ Pulvis ex vino infuso solo præstat a  $\zeta$ j. ad  $\zeta$ ij. & ultra.” *Piso.* p. 94. “ Pisco pulverem ab  $\zeta$ iß. ad  $\zeta$ j. proponit pro dosi.” *Geoff.* ii. 103.

## M E U M.

## S E C T. I.

Meum, Meu, Meum Athamanticum, *offic.* Meum foliis Anethi, *B. P.* 148. *T.* 312. Meum, *Dod.* 305. *Ger.* 1052. *R. H.* 432. *Syn.* 207. M. vulgare tenuifolium, *Clus. H.* 2. 198. *H. Ox.* 3. 270. M. vulgatus, *Park.* 888. Meu vulgare, sive radix Ursina, *J. B.* 3. 2. 11. Athamanta foliolis capillaribus, seminibus glabris striatis, *H. Cliff.* 93. Common-Spignel, or Meu : — which has a long root, with a bristly inch-thick head, brown without, and white within ; of a warm bitterish aromatic taste, and fragrant smell, somewhat stronger than fennel.

It grows in Germany, Italy, Spain, &c. also in Britain (as in Westmoreland,) in the meadows and pastures ; “ where it is known to all the country people by “ the name of Bald-money, or (as they pronounce it) Bawd-money.” *R. Syn.* l. c. But *Gerard* says the *Gentiana major*, among other names, is called in English Bald-moyne and Bald-money, p. 434.

“ Meum ( $\mu\eta\upsilon\nu$ ) quod Athamanticum denominatur, plurimum in Macedonia “ & Hispania nascitur, caule foliisque anetho simile, sed eo ipso crassius, ad “ duos aliquando cubitos assurgens : sparsis unâ parte radicibus tenuibus, “ partim

“ partim obliquis, partim etiam rectis; longis odoratis, & linguam exal-  
 “ cientibus.” *Dioscor.* l. 1. c. 3. p. 6. “ Meum in Italia non nisi a medicis feri-  
 “ tur & iis admodum paucis. Duo genera ejus. Nobilius Athamanticum  
 “ vocant, illi tanquam ab Athamante (*Son of Æolus King of Thebes*) inven-  
 “ tum: hi quoniam laudatissimum in Athamante reperiatur.” *Plin.* l. 20. c. 23.  
 p. 538. Yet some think it the Daucus Creticus; others the Sesili Creticum;  
 others the Tordylium, &c.

## S E C T. II.

It is somewhat more acrid than fœniculum, but milder than levisticum;  
 commended chiefly for flatulent and nephritic colics, gripes, female obstruc-  
 tions, hysteric fits, &c.

“ Calfacit 3. sicc. 2. attenuat, aperit, flatus discutit. *Ufus præcip.* in infla-  
 “ tione & ructu ventriculi, in mensibus & urina ciendis, in uteri suffocatione,  
 “ in torminibus ventris, in catarrhis, tartaroque pulmonum expectorando.  
 “ Extrinsecus in balneis, cataplasmatibus, &c. Multas ingreditur compositiones,  
 “ ut et ipsam theriacam.” *Schroder.* p. 626.

1. It resembles so much the fœniculum, that T. thinks it might be called  
 Fœniculum Alpinum perenne, capillaceo folio, odore medicato. *Inst.* p. 312.  
 It is somewhat stronger tasted, and smells as if a little lovage were mixed with  
 the fennel. “ Sapore & odore levistico gratiore & fragrantiore.” *Dale*, 121.  
 “ Odore est satis jucundo, pastinacæ ferè, magis tamen aromatico; sapore  
 “ non ingrato, nisi quod acris, & nonnihil amara.” *J. B.* “ Saporis est ferè  
 “ instar radicis apii, sed magis acris, odoris aromatici.” *Nucl. Belg.* 196.—  
 2. The virtues are generally transcribed from the ancients, though their Meum  
 appears to be more acrid than ours. “ Gesnero Mei Pabulo in Apulia, vaccæ  
 “ plurimum & optimum lac reddunt, & inde caseum caballinum dictum con-  
 “ fici, se audivisse refert *J. B.* . . At nobis caseum illum ex lacte bubolino,  
 “ seu buffelino fieri narratum est.” *R. H.* 432. Vide analysim imaginariam,  
 “ & inde imaginata in *Geoff.* ii. p. 106.

## S E C T. III.

It may be given in substance from ʒj to iij: in infusion to ʒj. The mithri-  
 datium has rad. Mei ʒij: and the theriaca ejus ʒß. “ Dosis a ʒß. ad ʒj. in  
 infusione a ʒj. ad ʒij.” *Geoff.* ii. p. 107.

*N. B.* “ Avicenna in aceto macerat per aliquot menses. Platearius si non  
 “ adsit, aut evanida sit, valeriana utitur. Ego angelica aut imperatoria utor,  
 “ in quibus excrementitium illud non facit nobis negotium.” *Hoffman.* p. 345.

## N Y M P H Æ A.

### S E C T. I.

Nymphæa, Nymphæa alba, Nenuphar, *offic.* Nymphæa alba major, *B. P.*  
 193. *T.* 260. *H. Ox.* 3. 513. *N. alba*, *Dod.* 585. *Ger.* 819. *J. B.* 3. 770.  
 Q q q 2 R. H.



*R. H.* 1320. *Syn.* 368. *N. alba major vulgaris, Park.* 1251. *Nymphæa calyce tetraphyllo, corolla multiplici, Fl. Lap.* p. 176. *H. Cliff.* 203. *Lotus Ægyptius Nuphar vocatus, Alp. Pl. Ægypt.* 103. White Water Lilly.—The root of this is large, knotty, light and spongy, whilst recent of a white colour, but brown when dried; of a subviscid, bitter and subastringent taste, and weak scent. The roots, leaves and flowers are reckoned medicinal; as is the seed by some.

It grows in marshy places, and flow running rivers, here as well as in more southern countries; flowering in June and July. The *Nymphæa lutea major, P. N.* 193, is of the same nature with the white, which is commonly preferred. They are pretty well described by *Dioscorides* l. 3. c. 148, 149. p. 233-4. “A Nymphis *Nymphææ* nomen sibi vindicasse creditur, quoniam loca amet aquosa.” *Id.* l. c. *Nymphæa nata traditur, Nympha Zelotypia ergo Herculem mortua; quare Heraclion vocant aliqui; alii Rhopalon, a radice clavæ simili. Ideoque eos qui biberunt eam duodecim diebus, coitû genituraque privari.” Plinius* l. 25. c. 7. p. 636. *Nenuphar* is said to be an Arabian word. There is a *νεσφάρ το ιατρικον*, in *Aristotele’s L. de Plantis*, l. 2. Notante *J. B.*

## S E C T. II.

It is subastringent and antiseptic; called anodyne, hypnotic and antaphroditic; and commended in diarrhæas, dysenteries, polutionibus nocturnis, maniacorum vigiliis, æstu febrili & venereo, &c. internè & externè.

“Radix & semen refrigerant & siccant gr. 3. astringunt. Flores & folia refrigerant & humectant. Singula sunt *usus præcip.* ad fluxum alvi, ad polutionem nocturnam, seminis acrimoniam, sanguinis æstum & tenuitatem. Extrinsecus crebrò adhibentur folia & flores ad febriles æstus & vigilias sopiendas, in lotionibus pedum, in impositione foliorum *scil.* lumbis, temporibus, plantis pedum. *Præp.* 1. Aqua stillat. ex floribus albis. 2. Aq. still. ex fl. luteis. 3. Syrupus simplex florum. 4. Syr. compositus. 5. Conserve ex fl. albis. 6. Oleum ex infusione florum. 7. Unguentum de *Nymphæa.” Schroder.* p. 637.

1. This is neither very bitter, nor very astringent to the taste; is a little viscous, and has a weak, but peculiar smell. It turns a solution of vitriol black; and *T.* says it reddens the blue paper, and chemically analysed yields much acid and oil, and a little volatile salt. *Hist.* p. 507. — 2. Externally it is said to ease pain, cool, repel, and procure sleep. “*Stomachi quoque ac vesicæ doloribus sedandis ipsa radix imponitur.” Dioscorid.* l. c. “Utuntur floribus & foliis contusis ad omnes calidas inflammationes, atque etiam succo, præsertimque ad demulcendos dolores a calida causa obortos . . . in febricitantibus, vigiliis, tum folia contusa applicant, tum succo cum oleo & aceto frontem & tempora illinunt.” *Alpin. Pl. Æg.* 104. And—3. Internally it is commended in many diseases. “*Nymphææ radix utilis est ad dysenterias pota.” Theophr.* l. c. 13. p. 1093. “Radix sicca, cum vino pota, celiacis & dysentericis auxiliatur, lienemque consumit. . . Eadem contra veneris insomnia bibitur, siquidem illa in totum adimit: quia & aliquot diebus continenter epota, genitale ita infirmit, ut arrigi minime possit. Idem porro  
“seminis

“feminis quoque poti effectus est.” *Dioscorides*, l. c. “Venerem in totum adimit Nymphæa Heraclia semel pota in 40 dies. Insomnia veneris a juno pota, & in cibo sumpta; illita quoque radix genitalibus, inhibet non solum venerem, sed & affluentiam genituræ; ob id corpus alere vocemque dicitur.” *Plin.* l. 26. c. 10. p. 658. “Ad conciliandum somnum syrupum ex eo paratum frequentant, atque tum feminum tum radicis pulverem ægrotis cum ejus decocto exhibent. Usus radicis feminumque secreti loco habetur, apud multos, ad gonorrhœam, & in mulieribus ad alvum profluvium firmandum, & ad dysenteriam. Multi vero ab hujus plantæ usu cavent, eo timore ne eis coeundi tum desiderium, tum vires minuantur. Apud eos enim omnes compertum est, usum feminum atque radicis homines reddere valde frigidos ac tardos. Hinc usum hunc multos ibi sanctos heremitas sequi audio, ut facilius vitam celebem ducere queant.” *Alp. Pl. Æg.* 105. “The syrup also helpeth much to procure rest, and to settle the brains of frantic persons.” *Park.* N. B. Ad maniacorum vigilias laudatur a quibusdam: & ad vigilias, & ad maniam ac delirium, ab *Herman. Cyn.* p. 174.

But since *Alpinus* says also (p. 104.) “Ægyptii caules crudos, cum suis capitibus, per æstatis calores mandunt: subdulces enim sunt, atque humidi, admodumque refrigerant & humectant, quos appellant Razelnil,” the virtues of this plant, which are most insisted on, may be doubted of.

## S E C T. III.

It may be given in substance from ʒj to iij: in infusion to ʒj. No danger will arise from the dose. We keep no preparation of it; nor do we use the simple.

The *Cod. Medic. Paris.* retains N. albæ florum conserva, mel, aqua, syrupus & oleum coctum: the radix N. luteæ is in several compositions, as clyst. refriger. pulv. & troch. de caphura. “Refrigerant, & motus nimios compeſcunt, sitim egregie sedant; præcipuè eorum aqua stillatitia, quæ parva quantitate exhibita, plus facit quam amphoræ aquæ communis. Utuntur radicibus, & præcipuè floribus albæ, ex quibus fit syrupus.” *Nucl. Belg.* p. 211.

## P Æ O N I A.

## S E C T. I.

1. *Pæonia*, *Pæonia mas, offic.* *Pæonia* folio nigricante splendido, quæ mas, *B. P.* 323. *T.* 273. *Pæonia mas, Dod.* 194. *Ger.* 980. *Park.* 1381. *R. II.* 693. *Pæonia mas præcocior, J. B.* 3. 492. *P. simplex* latiore folio trifido, *H. Ox.* 3. 454. *Pæonia mas, offic. Dale* 175. *Pæonia, H. Cliff.* p. 211. The male Peony. — This has a large thick and long branched root, brown without, white within, of a rank sweetish taste at first, then bitterish; and of no smell when dried; though whilst recent its scent is heavy, and, as it were, narcotic.

This



This I think evidently a different species from the female. “*Pæonia mas præ-*  
 “*cocior, ut rarior, ita notabili foliorum & radice differentia, a fœmina dispe-*  
 “*scitur : ea siquidem quam fœmina videtur altius affurgere . . . caulibus in aliquot*  
 “*ramos divisis, foliis vestitis nucis juglandis fere positu & figura . . . grana,*  
 “*quam in fœmina crassiora . . . Radix seu palus alte depangitur, recta, non-*  
 “*nunquam in adnata pauca divaricata. Hujus flores Maii initio explicantur,*  
 “*moxque decidunt. Gesnerus in generoso dicto Helvetiæ monte reperiri au-*  
 “*dverat. Si seminatur vere, ut plurimum per annum latitat ; & post singulis*  
 “*annis foliorum divisura augetur. Non se multiplicat ut alba, vel fœmina,*  
 “*vel ea quæ pleno flore est ; radix enim subest crassa, profunde descendens.”*  
*J. B. 3. 492.* It is also both stronger tasted and smelled than the female. The flowers and seeds are also used. The seeds are round, black, and shining grains, about the bigness of peas, with a white sweetish kernel. The flowers taste and smell like the root.

2. *Pæonia fœmina, offic.* *Pæonia communis vel fœmina, B. P. 313. T. 274. H. Ox. 3. 454. Pæonia fœmina altera, Dod. 195. P. fœmina, Ger. 981. R. H. 694. P. fœmina vulgaris flore simplici, Park. 1380. Par. 344-3. Pæonia fœmina, offic. Dale 176. Female Peony.*—The roots “ consist of many thick  
 “ and short tuberous clogs, fastened at the end of long strings, and all from  
 “ the head of the root, which is thick and short, and tuberous also, of the  
 “ same or the like scent with the male.” *Park. Par. 341.*

3. *Pæonia offic. Dale 176. Pæonia fœmina, Ph. Lond. edit. 1721. Pæonia fœmina flore pleno rubro majore, B. P. 324. T. 274. H. Ox. 3. 455. P. flore pleno rubro, J. B. 3. 493. R. H. 696. P. fœmina multiplex, Ger. 981. P. fœmina, vulgaris, flore pleno rubro, Park. 1380. Par. 341.* The great double female Peony ; which is a variety of the former.—“ The roots consist of a num-  
 “ ber of tubers, some round and some longer, that hang by strings to the main  
 “ head.” *Miller’s Bot. p. 325.* describing the male. Of the *Pæonia fœmina offic.* or double red Piony, he says, “ The roots grow after the same manner  
 “ as the male, and indeed being more increasing and easier to be had, they  
 “ are generally sold for the roots of the male. They flower in April or May.  
 “ The roots and flowers are used.” This fraud the *New Pharm.* approves of, allowing either the male, or double red female Piony to be taken when *Pæonia* is ordered : but it specifies not, whether root, flower or seed is used. “ *Pæo-*  
 “ *niæ maris radix recta descendit, & postea ramificatur inæqualiter : fœmina*  
 “ *subitò quasi in digitos quosdam dividitur, unde δακτυλοι ἰδαίαι dicuntur,*  
 “ *Ex utraque tria ulurpantur in officinis, radix, flos, & semen.” Hoffman.*  
*p. 415.*

“ *Vetustissima inventu est Pæonia, nomenque authoris retinet : quam qui-*  
 “ *dam Pentorobon appellant, alii Glycysidem.” Plin. l. 25. c. 4. p. 630.* who attributes plures glandes to the male, than to the female Peony. But both are sufficiently described by *Dioscorides* l. 3. c. 157. p. 237. to demonstrate his *Pæonia mas* & *fœmina* to be the same with ours. “ *Pæonia* five *Glycyside* quibus-  
 “ *dam Pentorobon (πεντοροβον) dicitur . . . Mari folia sunt qualia juglandis ;*  
 “ *fœminæ vero incisuris Smyrni modo divisa. Summo caule fert utraque*  
 “ *siliquas quasdam, veluti amygdalas : quibus dehiscuntibus, grana multa ru-*  
 “ *bentia, parva, acinis puniculorum similia inveniuntur, & inter hæc media,*  
 “ *quinque aut sex, nigra purpurea. Radix maris digitali fere est crassitudine,*  
 “ &

“ & palmi longitudine, gustu astringens, candida: fœminæ vero radicibus  
 “ cui glandes septem octove adhærent, sicut asphodeli.” Thus *Dioscorides*. This  
 difference of the colour of the grains, is also observed in *Hippocrates*, who fre-  
 quently orders the black seed: and lib. *De Natura Mul.* p. 587. l. 6. Γλυκυσι-  
 δης κοκκὸς τὴς μελανας, ἢ ἐρυθρας, are prescribed. Hence it is also the γλυκυ-  
 σιδη *Hippocrates*.

“ Locus. Alpes Helveticæ.” *Lin. M. M.* p. 94. “ Habitat in Umbrosis  
 “ Helvetiæ & Idæ in Cretâ vallibus montium.” *H. Upsal.* p. 149.

## S E C T. II.

The roots of the male Peony are aromatic, anodyne, attenuant, subastringent,  
 diaphoretic, diuretic, called cephalic and uterine; and commended in the epi-  
 lepsy, vertigo, incubus, &c. in obstructis mensibus & lochiis, in grinding  
 pains after child-birth, &c. The semina and flores maris, as also the radix P.  
 fœminæ, partake of these virtues, but in a lower degree.

“ *Officin. nat.* Radix, semen seu grana, flores. Calfacit & siccant 2. saporis  
 “ est subdulcis ac subacris, seu amari; subastringit. *Usus præcip.* in affectibus  
 “ cephalicis, epilepsia, incubo, &c. uterinis, mensibus obstructis, lochiis pur-  
 “ gandis, doloreque post partum mitigando, epatis obstructione, &c. Ex-  
 “ trinfecus suspenduntur grana ac radix de collo pro arcenda epilepsia. *Præp.*  
 “ Aqua, syrupus, extractum, conserva ex floribus, sal ex macerata integra  
 “ planta, fecula ex radice, & oleum still. ex granis.” *Schroder.* p. 651.

1. The root of the male Peony when recent is at first disagreeably sweetish,  
 and as it were empyreumatic to the taste, then subacid, astringent and bitter,  
 and has a volatile fetid smell; that is both in flavour and scent, it seems to  
 resemble the empyreumatic spirits of plants, distilled per retortam; but its bit-  
 terness continues longest, viz. above half an hour. Tea made of it, after two  
 days maceration, tasted of the root, but did not smell so strong. Mixed with  
 a sol. vitrioli it became of a dark blue colour, precipitated a black sediment,  
 and was then blue and transparent above. It made little alteration on syr.  
 violarum, or blue paper, but reduced a sol. heliotropii. Tea made of the P.  
 fœmina was less tinctured, every way weaker. Ol. tartari made it smell a little  
 urinous, which effect it had not on the former. Both stood three weeks in  
 the remainder of the infusions: the last turned mouldy, but not the former.—  
 2. Much of its proper spirit evaporates in drying. “ *Pæonia radicem habet*  
 “ *leviter adstringentem, cum quadam dulcedine, ac si plusculum dentibus*  
 “ *mandas, acrimoniam item quampiam subamaram subesse percipies.*” *Galen.*  
*Simpl.* l. 6. p. 45. G. “ Radix saporis subdulcis, odoris nullius.” *Dale.*  
 “ *Pæoniæ maris semina sunt saporis primo dulcis, deinde amaricantis grati;*  
 “ *radix est saporis dulcioris quam semina.*” *Nucl. Belg.* 219.—3. Externally it  
 is said to cure the epilepsy. “ *Habet in eam rem elegantem historiam Galenus,*  
 “ *cujus similem non legeris alibi,*” says *Hoffman*: which is this . . . “ *Vidi puel-*  
 “ *lum quandoque octo totis mensibus morbo comitali liberum, ex quo hanc*  
 “ *radicem gestavit; ac postea forte fortuna cum, quod a collo suspensum erat*  
 “ *decidisset, protinus denuo convulsione correptum: rursusque suspensum in*  
 “ *loco illius alio inculpate postea egisse.* Porro visum est mihi satius esse rur-



“ sum id collo detrahare, certioris experientiae gratia. Id cum fecissem, ac  
 “ puer iterum esset convulsus, magnam recentis radicis partem ex collo ejus  
 “ suspendimus; ac deinceps prorsum sanus effectus est puer, nec postea con-  
 “ vulsus est.” Thus *Galen Simpl.* l. 6. p. 45. H. “ Pæoniam masculam in-  
 “ fantium collum subnexam comitalem morbum sanare, verissimum esse com-  
 “ peri.” *Fernel. de Occult. Medic. Viribus*, l. 2. c. 17. p. 809. “ Experimen-  
 “ tum hoc Galeni confirmant Montanus, Fernelius, Apollonius Menubenus,  
 “ lib. de Alc. c. 7.” *R. H.* But Julius Alexandrinus, Matthiolus, Sylvius,  
 Hoffmannus, and many others, who have repeated the experiment, have been  
 disappointed in their hopes of success. Some have imagined that much de-  
 pended on the time and manner of the taking it up. Vide *Hoffman.* p. 415.  
 §. 5.—4. It was much used by the ancients. Vide *Dioscorides*: and certainly it  
 has considerable virtues, if rightly used, and in sufficient quantity. “ The  
 “ male Peony root is, far above all the rest, a most singular approved remedy  
 “ for all epileptical cases, and more especially the green root, than the dry,  
 “ if the disease be not too inveterate.” *Park. Par.* 344. who seems to have  
 been acquainted with the effects, no less than with the roots, of both, better  
 than the Committee of *London Physicians*.

## S E C T. III.

The dose of these need not be determined. They may be given in sub-  
 stance, infusion or conserve. I do not think an aqua simplex radicis maris  
 useless, though such is never drawn here. Pæoniæ (sc. maris) radix is used in  
 the pulvis antiepilepticus, tinctura cephalica utraque: and we have a good  
 aqua Pæoniæ composita, though several of the ingredients might be left out;  
 also a syrupus florum.

## P A R E I R A B R A V A.

## S E C T. I.

Pareira brava offic. Pareira brava, Botua, *Lem. Dict.* 407. P. brava, i. e.  
 Vigne Sauvage, *Hist. Acad. R.* 1710. p. 73. Butua, & Pareira brava, offic.  
*Geoff.* ii. p. 21. Pareira brava, or American Wild-Vine.

“ Pareira brava, offic. *Mont. Exot.* 7. *Chomel.* 261. Raiz de Nossa Seínora,  
 “ *Worm. Mus.* 157. Herba radicis de Nossa Seínora, Brasiliensibus dicitur  
 “ Caapeba, a plebe Lusitanica, Erva de Nossa Seínora, *Ibid.* p. 158. Caapeba,  
 “ *Piso* 94. Caapeba Brasiliensibus; Lusitanis Erva de Nossa Seínora, aut Cipo  
 “ de Cobras, *Markgr.* p. 25. Convolvulus Brasilianus, flore octopetalo, mo-  
 “ nococcus, *R. H.* 1331.” *Dale* p. 113. “ Butua, Overa Brutua, Pianta In-  
 “ diana, *Zan. Hist.* 59. “ *Wild Vine* ex India Orientali a Lusitanis devehit-  
 “ tur.” *Dale*, p. 419. Cissampelos, foliis pellatis cordatis emarginatis, *Lin.*  
*M. M. Sp. Pl.* 1031.

“ Lusitani hanc radicem ex Brasilia afferunt, plantamque esse vitis sylvestris  
 “ speciem narrant. Nullo ab autore, ne quidem a Pisone, saltem his nomi-  
 “ nibus

“ nibus descripta fuit, excepto tamen Zanone, qui cujusdam ligni *Butua*,  
 “ *Brutua* & *Ambutua* dicti, mentionem facit, sed admodum obscuram & in-  
 “ certam, quæ tamen nostræ radici convenire potest.” *Geoff.* ii. 21.

It is a long woody root, brown and somewhat wrinkled on the outside, paler or yellowish within, of a bitterish and sweetish taste, and no smell, brought by the Portuguese from Brasil.

“ Radix est lignosa, dura, contorta, foris fusca, rudis, variis rugis, tum  
 “ longis tum circularibus circumscripta intus obscurè flavescens, variis fibris  
 “ lignosis quasi intertexta, ita ut transversim secta, plures circulos concentri-  
 “ cos, quamplurimis radiis seu fibris a centro ad circumferentiam protensis,  
 “ intersectos exhibeat: inodora, subamara, cum quadam dulcedine, glycyrrhizæ simili, digiti, & interdum brachii infantis crassitie.” *Geoff.* ii. 21.  
 “ Saporis primo dulcis, deinde subamari.” *Nucl. Belg.* p. 220. Vide *Lin. M. M.* p. 162.

It is brought from Mexico according to *Lemery*: from Brasil according to the *Acad. R.* It is the wild vine from Peru, in the *Pharm. Leid.* And *Dale* says it is brought from the East Indies; but he has it from the faulty *English* *Geoffroy*.

## S E C T. II.

It is probably a mild diuretic, and, as it is used, a diluent deobstruent like the *Ruscus*; called a lithontriptic; and commended in the gravel, ulcers in the reins or bladder, nephritic colics, jaundice, fluxes, hæmorrhages, pleurisy, angina, poisons, &c. which is in too many diseases to leave us room to conclude that it has much effect in any.

“ Intus sumpta diarrhœam, dysenteriam, gonorrhœam, fluorem album, hæmoptoen & hæmorrhagias quascunque sistit. Pleuritidem & anginam, tum intus sumpta, tum cataplasmatibus forma, supra partem dolentem applicata sanat. Venenis intus sumptis, animalium venenatorum morsui, & telorum venenatorum ictibus medetur. Sed præsertim ad nephriticum dolorem, urinæ suppressionem, & ad renum vesicæque calculum pro specifico insigni habetur. Revera sæpius in dolore nephritico & urinæ suppressione hocce remedium felici cum successu exhibui, & nonnunquam ægrotantem fere in instanti, superveniente uberrimo urinæ profluvio, dolore liberatum vidi. (He does not think it dissolves the stone, though it brings away plenty of sand and small stones sometimes.) Sed hujus remedii operandi ratio in eo posita mihi videtur quod muscoam lympham ac tenacem, attenuet & resolvat. Cum igitur dolor nephriticus, aut urinæ suppressio ex mucosa lymphâ, prima nempe arenularum & calculorum materia, renum colatoria infarciens, vel etiam ex arenularum congerie, hoc muco in unam massam compacta, quæ per tempus in calculum indurefcit, oritur; tunc butua hunc mucum dissolvendo, liberum urinis exitum aperit, & cum uberrima urinæ copia arenulas sejunctas expellit.” *Geoffroy* ii. 22. who says he found its efficacy in ulcers renum & vesicæ, oftner than once; also in asthma humorali; in ictero a bile crassiore, & grumosa; & in gonorrhœa. See also *Hist. Acad.* l. c.



The taste does not promise much; and the virtues attributed to it at first sight appear to be romantic; "there is no great demand for it in France." *Sav. Dist.* ii. 585. It never got into the *London Dispensatory*. About 25 years since Pareira brava was an ingredient in every diuretic ptisan, &c. but I could never learn that it had any notable effects; insomuch that in a short time (about four years) it fell again into disuse; and I believe it has not been prescribed here these twenty years past. "*Joh. Lud. Leberecht Leseke, (in Tractatu de selectiss. remediis, Germanicæ, Berlin 1755.)*" "Pareiræ bravæ radicem, ad libi. usque sine effectû ægris se dedisse narrat." *Comment. Lips.* vol. 5. p. 116.

## S E C T. III.

It is a hard woody substance, yet has been given in powder from gr. x. to gr. xv. In infusion or decoction the dose is à ʒj. ad ʒij. *Hist. Acad.* l. c. "Dosis hujus radicis est a gr. xij. ad ʒß. in substantia, & ad ʒij. vel ʒij. in decocto. . . Cavendum est ne nimia dosi exhibeatur; ardorem enim in renibus accenderet, & fortasse inflammationem." *Geoff.* ii. 24. If infused like tea, and taken by cups with sugar, there seems to be no danger in ʒij. or iij.

"Caapebæ (seu Ervæ de Nossa Senhora) radix in taleolas secta, perque aliquot dies sub dio in liquido convenienti macerata vim suam illi communicat, ne ingrato adeo sapore, aut cervisiâ aut vinum, quo diluitur imbuit; quin potus ordinarii loco ægri illo utuntur, quod renum, ureterum & vesicæ obstructionibus medeatur. Usque adeo calculi expellit materiam (licet raris hic detur hoc malum) ut magnates Lusitani aliud nullum medicamentum huic prætulerint." *Piso*, p. 95.

## P E N T A P H Y L L U M.

## S E C T. I.

Pentaphyllum, Quinquefolium, *offic.* Quinquefolium majus repens, *B. P.* 325. *T.* 297. Quinquefolium majus, *Dod.* 116. *Q.* vulgare, *Ger.* 987. Pentaphyllum sive Quinquefolium vulgare, repens, *J. B.* 2. 397. *P.* vulgarissimum, *Park.* 398. *R. H.* 611. *Syn.* 255. *P.* minus, procumbens, flore luteo, vulgare; radículas emittens ex geniculis, *H. Ox.* 2. 189. *Potentilla* foliis digitatis, longitudinaliter patentiferratis, caule repente, *H. Cliff.* 194. Common Cinquefoil, or five-leaved-grass. — It has a pretty large root, of a dark-brown colour on the outside, reddish within, astringent to the taste, and no smell.

"It grows every where by hedges and way sides, flowering all summer: the leaves and root are used." *Miller Bot.* 336. "Radix longa, crassitudine interdum digitali, colore rubro, sapore adstringente & exsiccante; exsiccata quadrata evadit." *J. B.* "Pentaphyllon ramulos fert festucarum similitudine, tenues, dodrantes, in quibus καρπος: folia menthæ, quina singulis pediculis raro plura, in ambitu serrata, florem ex candido pallefcentem auri æmulum, ἀνθος δὲ ὡχρελευκὸν χρυσοειδές. Subrubram vero habet radicem, oblongam,

“ oblongam, veratro nigro craſſiorem, cujus eſt multiplex uſus. Naſcitur  
“ in aquoſis locis & juxta rivos.” *Dioſcor.* l. 4. c. 42. Is this our Cinque-  
foil?

S E C T. II.

It is aſtringent, agreeing in virtues with tormentil; called ſplenic; and much commended, though little uſed, except in the theriaca.

“ *Officin. nata.* Herba, radix. *Vires.* Temperatum eſt caliditate & frigidi-  
“ tate, ſiccac 3. aſtringit. Herba vulneraria eſt. *Uſus præcip.* in affectibus  
“ a catarrhis oriundis, paralyſi, phthiſi, arthritide, in uteri humiditate corri-  
“ genda, in ſanguinis exſpuitione, ac ruſſi, in ictero, in obſtructione epatis &  
“ lienis, obtundit acrimoniam bilis aduſtæ, ſiſtit fluxus alvi, hæmorrhoidum,  
“ hæmorrhagiam narium. Prodeſt in calculo, ac croſione renum, in hernia,  
“ in febribus. Extrinſecus prodeſt in oculis inflammatis (ſucco inſtillato) in  
“ oris putredine, laxitate dentium; abſtergit ulcera etiam maligna. *N.* in fe-  
“ bribus tertianis exhibent folia trina, in quartana quaterna, &c. *Præp.* Aqua  
“ ſtillat. ſit ex herba collecta Maio.” *Schroder.* 659. Vide *Dioſcorides* l. c. who  
among many other things ſays, “ Folia in hydromelite, aut vino diluto &  
“ piperis exiguo, bibuntur contra febrium circuitus: in quartana quidem,  
“ quaternum ramulorum folia: in tertiano vero ternum: in quotidiana  
“ unius.” *Hippocrates* ſays, “ Si tertiana febris detineat, ſi quidem poſt tres  
“ acceſſiones quartaprehendat, medicamentum deorſum purgans propinato.  
“ Quod ſi medicamento tibi minime indigere videatur; Pentaphylli radices,  
“ acetabuli quantitate, in aqua tritas bibendas dato.” *De Morbis* l. 2. p. 473.  
lin. 53. Vide *R. H.* 612.

“ The taſte of the leaves has ſomething viſcous in it; they redden a little  
“ the blue paper, but the roots redden it more; they are ſtyptic and ſome-  
“ what acid.” *T. Hiſt.* 31. “ Pentaphyllum, tormentilla, argentina, fragoria,  
“ ut genere, ſic viribus convenire videntur.” *R. H.* l. c.

P E T A S I T E S.

S E C T. I.

Petaſites, *effic.* Petaſites major & vulgaris, *B. P.* 197. *T.* 451. Petaſites,  
*Dod.* 597. *Ger.* 814. *R. H.* 260. *Syn.* 179. P. vulgaris, *Park.* 419. P. vul-  
garis, rubens; rotundiori folio, *J. B.* 3. 566. *H. Ox.* 3. 95. Tuſſilago major,  
*Matth.* 615. Tuſſilago, Scapo imbricato, thyriſiflore ſolculis omnibus herma-  
phroditis, *H. Cliff.* 411. Butter-burr, or Peſtilent-wort. — This has long,  
pretty thick, branched creeping roots, brown or blackiſh on the outſide, white  
within, of a bitteriſh and ſomewhat aromatic taſte, and while recent of ſtrong  
ſmell.

It grows by river ſides, near lakes, and in moiſt and ſandy places, flowering  
in March. It is  $\delta \pi \tau \alpha \sigma \iota \tau \eta \varsigma - \tau \epsilon$ . Petaſites Petaſitis in gen. Petaſitidis vulgò.  
It is probably the Petaſites Dioſcoridis, though Matthiolus, p. 806. & Epist.  
p. 122. thinks otherwiſe. “ Petaſites pediculo eſt cubitali majore, & craſſitu-  
R r r 2 “ dine



“dine pollicis, cui folium prægrande Petasi modo amplum ceu fungus incumbit. Tritum id contra maligna & phagedenica ulcera efficaciter illinitur.” *Dioscor.* l. 4. c. 108. The foot-stalks of the leaves are sometimes five or six foot long; sometimes not one.

## S E C T. II.

It is an attenuating diaphoretic and diuretic; called alexipharmic; and commended in the pestilence, malignant fevers, coughs, asthmas, vapours, &c.

“Radix quæ gummosa est, calf. & sicc. 2. partium est tenuium, amari saporis; attenuat, aperit, sudorifica est & alexipharmaca in peste, in lipothymia uterina, morbis pectoris, a mucilagine tartarea oriundis, e. g. tussi, asthmate. Extrinsecus commendatur ad bubones & ulcera maligna. N. substitui potest costo, quippe viribus eidem æquipollere compertum est. *Præp.* 1. Aqua e radicibus, vel ex toto. 2. Oleum stillat. sed rarum est. 3. Extractum.” *Schrod.* p. 645.

1. It is neither acrid, nor very bitter, nor very resinous. “Radix amarescit.” *J. B.* “Insigniter amara est sed non perinde acris.” *R. H.* “Saporis est acris, amaricantis, aromatici, odoris fragrantis.” *Dale* 86. “The roots have a strong smell, and a hot aromatic bitterish taste.” *Miller Bot.* 340. “Saporis sunt subamari, acris, & odoris aromatici.” *Nucl. Belg.* 225.— 2. The running roots soon spoil: the cortical part of the other is more resinous: if this resinous gum were extracted, it would claim the virtues better than the root does. — 3. The ancients seem to have used the Petasites only externally; *an & foliis tantum?* But the moderns commend its root inwardly as an efficacious remedy in many diseases. To me it seems to agree with tussilago and bardana in many things. “Petasites ex tertio est ordine descendentium. Quamobrem ad cacoethe & phagedænica ulcera ea utuntur.” *Galen. Simpl.* l. 8. p. 58. C. and this is all he says of it there. “Dodonæus radicem siccam, actu calidam & siccam esse dicit in 2<sup>o</sup> gradu: quod omnino verisimilius est, quam ad 3<sup>m</sup> ascendere. Est enim insigniter amara, sed non perinde acris. Potest menses, urinas & sudores movere. Vulgus proinde nostrum in febribus pestil. utitur, & vocat *Pestilens wurzel.*” *Hoffman.* p. 459.

## S E C T. III.

It may be given to drachms, yea ounces, in any manner. It is the aqua epidemica, and aqua theriacalis, otherwise it is little used.

“The butter-burr is certainly an useless ingredient, as affording nothing upon distillation.” *Lewis's Pharm.* What it yields is certainly of little consequence. The aqua theriacalis is an injudicious prescription, and might well be omitted; none of the virtues of the theriaca arising in distillation.

## PEUCEDANUM.

## S E C T. I.

Peucedanum, Fœniculum porcinum, *offic.* Peucedanum Germanicum, *B. P.* 549. *T.* 318. *M. U.* 36. *P.* minus Germanicum, *J. B.* 3. 2. 36. Peucedanum, *Ger.* 1054. *R. H.* 416. *Syn.* 206. *P.* vulgare, *Park.* 880. *P.* majus brevioribus foliis Germanicum, *H. Ox.* 3. 312. Peucedanum foliolis quinques tripartitis, lineari-subulatis, integerrimis, *H. Cliff.* 93. Hogs-fennel, Sulphur-wort, or Hare-strong, — which has a thick and long root, bristly on the top, of a dark-brown or blackish on the outside, white or a little yellowish within, of a hot biting and disagreeable aromatic taste, and while recent of a strong smell.

It grows by the river Thames, and the other marshy places in England, flowering in July. Peucedanum à πικνη, pinus. It is probably the Peucedanum antiquorum. “Peucedanum caulem profert tenuem, gracilem fœniculo similem: comam vero habet circa radicem, copiosam & densam; florem luteum; radicem nigram gravi odore, crassam, liquoris plenam.” *Dioscor.* l. 3, c. 92. who (as does *Tragus* as recited by *J. B.*) says the juice, “inter colligendum, cephalalgiam & vertiginem inducit, nisi prius nares rosaceo perunxerit, &c.” But though I have taken it up, handled and cut it often, it at no time gave me either head-ach or vertigo.

## S E C T. II.

It is a stimulating acrid diaphoretic and diuretic; called pectoral and uterine; and commended internally in coughs, phlegmatic infarctions of the lungs, flatulencies, hard labour, nephritic pains, &c. and externally for pains, pallsies, tumors, &c. Dosis ad ʒj. in infusione ad ʒij.

“Calf. & ficc. ʒ. aperit, attenuat, expectorat, mucilaginem, tartaream, bilemque educit. *Ufus præcip.* in affectibus pectoris, tussi, inflationibus, & sim. in obstructionibus epatis, lienis, renum, ciet urinam, calculum atterit & expellit. Extrinsecus in hemicrania, aliisque generibus cephalalgiae a catarthis ortum ducentibus, in tumoribus renitentibus, ulceribus inveteratis mundificandis; promovet capillorum proventum, &c. *Præp.* Sal & oleum stillat. quæ raro prostant officinalia.” *Schroder.* p. 647.

It is acrid, scarcely bitter, and fetid, smelling I think somewhat bituminous; and emits, being wounded while recent, a yellow juice, which hardened looks very like common brimstone. “A croceo illo succo seu a sulphureo radiceis odore Sulphor-wort vocant. . . . Radix odore picco verosa.” *J. B. R. H.* “Matthioli dubitat an legitima sit. . . . Nec obstat, si & odor & sapor alicubi ignavus est: ego tam vegetam habui in manibus, quam ullum potest esse sulphur.” *Hoffman.* 423. who adds, “Nec dubito facultates a Galeno traditas ad amissum convenire.” “The root is of strong scent like hot brimstone.” *Park.* It was much used by Hippocrates and the other antients, (*Vide Galen. Simpl.* l. 8. p. 58. *D.*) and appears to be an efficacious medicine in cold phlegmatic diseases and hysteric fits; yet it is now almost every where out of use.



## LECTURE XLIV.

## PIMPINELLA SAXIFRAGA.

## S E C T. I.

**P**impinella Saxifraga, *offic.* Pimpinella Saxifraga major altera, *B. P.* 159. P. Saxifraga minor, *M. U.* 12. P. Saxifraga major nostras, *Park.* 946. P. Saxifraga minor, foliis sanguisorbæ, *R. H.* 445. *Syn.* 213. P. Saxifraga, vulgaris, Pimpinellæ minoris folio, *H. Ox.* 3. 285. Saxifraga hircina minor, fol. sang. *J. B.* 3. 2. iii. Tragofelinum alterum majus, *T.* 309. P. Saxifraga minor *offic.* *Dale* 125. Pimpinella, *H. Cl.* p. 106. The lesser round-leaved Burnet Saxifrage.—This has a long, slender wrinkled root, brownish without, white within, of a hot biting taste, and rank smell whilst recent.

It grows in dry pastures and stony places, flowering in August. There are several species, or rather varieties Tragofelini, which may be used indifferently: but this is most common here. The herba (rather folia) and semen, are reckoned medicinal; but the seed was never kept here; and the leaves were formerly, by mistake for the P. sanguisorba, put into the syrupus de althea in our *Pharmac. ed.* 1722. following the *Old Ph. Londin.* for by Pimpinella, the German authors, and they only, understand P. Saxifraga; but the Dutch, French, Italian, &c. the P. sanguisorba; which therefore Fernelius designed in his *syr. de althæâ*; as appears also by comparing Fernelii p. 271. with p. 303. “Pimpinellæ & Bipinellæ a recentioribus, a foliorum binis ordinibus, pennatim seu plumatim digestis nominata, veteribus indictæ existimantur: quæ etiam Bipennulæ & Pampinella vocantur.” *B. P.*

## S E C T. II.

It is acrid, detergent, diaphoretic, diuretic, scorbutic, hepatic; called alexipharmic, lithontriptic, and vulnerary; and commended inwardly in obstructions of the viscera, dropsy, scurvy, gravel, asthma, &c. and outwardly for pains, tumors, ulcers, &c. Vide *Schroder.*

“*Officin.* Radix, folia, semen. *Vires.* Calf. & siccat 3. attenuat, aperit, abstergit, sudorifica est, lithontriptica, & vulneraria, &c. Saporis acris. *Ufus præcip.* in præcavendis & curandis venenis, ac contagiosis morbis, in reserandis obstructionibus hepatis, renum, pulmonum, mensium; in arena, calculo & stranguria; in colicis doloribus, tussi, asthmate, peripneumonia, in cruditate & imbecillitate ventriculi, in lue venerea. Antidotus est argenti vivi. Extrinsecus valet in maculis faciei abstergendis, in odontalgia, auget lac, maturat bubones, cancrasosque tumores, mundificat & consolidat vulnera, tam recentia quam inveterata. *Præp.* 1. Conditum. Ex radice. 2. Confectio. Ex radice, vel semine. 3. Conserva. Ex semine. 4. Aqua stillat. ex integra planta; ut & 5. Oleum stillat. 6. Sal ex cinere.” *Schroder*, p. 648.

It.

It raises a pungent heat in the mouth, but it lasts not long; its smell is fetid; but neither acrid nor fetid unless when it is recent. “Dauci pastinacæ vel ligultri quiddam, nec insauve redolet.” *Leb. Adv.* 321. “Matthiolus re-  
dolere ait. . . Folia confricata (F. Columna) virus olent hirci, sicut tota  
planta. Gustu acri, atque *παραξινον*, non solum autumni tempore, sed  
semper.” è *Col. Phys.* p. 77.) *J. B.* which is true of our plants. It inflames  
and blisters the skin; so comes near the raphanus rusticus in virtues, while  
recent; but it is of little use dried. *J. B.* employs near two pages on its vir-  
tues; where it is said to have cured 15000 wounded Hungarians, the remains  
of *King Chabab's* army, whence it was called Chabaire, *i. e.* Chaba's plaister.  
vid. *Pimpin. Sanguisorba.* “Contra tremorem artuum, ortum a mercuriali-  
bus medicamentis semper utimur radicibus bardanæ, fœniculi & saxifragæ.”  
*Herman MS.* “Contra tremores artum a mercurialibus ortos, laudatur uña  
cum fœniculo.” *Herm. Cyn.* p. 71.

## S E C T. III.

It may be given in substance to ʒj; in infusion to ʒij. and more. It is an ingredient in the *Pulvis ari compositus*, but contributes little to its virtues.

## P O L Y G O N A T U M.

## S E C T. I.

*Polygonatum, Sigillum Solomonis, offic.* *Polygonatum latifolium vulgare,* *B. P.* 303. *T.* 78. *H. Ox.* iii. 537. *Polygonatum, Dod.* 345. *Ger.* 903. *R. H.* 664. *Syn.* 263. *Polygonatum vulgare, Park.* 696. *Polygonatum vulgò Sigillum Solomonis, J. B.* iii. 529. *Convallaria foliis alternis floribus ex alis, H. Cliff.* 124. *Solomon's Seal* has a tuberose, jointed, flattish, white root, marked with some hollow seal-like impressions; of a rancid first bitterish and at last sweetish taste, and heavy fetid smell.

It grows in the woods in several places of England. In our gardens it flowers in May. *Polygonatum vocatur a geniculata radice.* “Quot annos habet hæc planta, tot genicula habet radix, quorum singulis est impressa nota delapsæ plantæ. Hinc Sigillum Solomonis.” *Hoffman,* p. 426. *Dioscorides's* description of the *Polygonatum* (l. 4. c. 6.) agrees pretty well with this plant; though I have not observed that the folia sapore quodammodo malum cotoneum aut punicum redolent, aut gustanti ascriptum saporem recipiunt. “Habet adstrictiones pariter & acrimoniæ quippiam necnon fasti-  
diosam quandam amaritatem explicatu difficilem. Quocirca nec admodum est usui.” *Galen. Simpl.* l. 8. p. 58. H.

## S E C T. II.

It is emollient, deterfive, and laxative; called astringent; and commended internally for the fluor albus, hæmorrhoids, hernias, &c. and externally as discutient



discutient and cosmetic. Dose in substance ʒj; in infusion ad ʒij. Cum lilio convenit.

“Temperamenti est mixti, subastringit, extergit, saporis est subamari & subacris. *Ufus* internus est in fluore albo mulierum. Baccæ pituitam mucilaginosam per vomitum & secessum educunt (dosis No. xiv. xv.) idem & de radice (ʒj.) ac de foliis. Extrinsecus faciei maculas abstergit, cutim dealbat, resolvit sugillationes, ac tumores renitentes, lotione fugat lenticulos capitis, scabiemque infantum exsiccat, cicatrices, maculasque morbillorum emendat, &c. *Præp.* Aqua ex radice cum foliis & floribus.” *Schrod.* 652.

1. Its taste is nauseous, and smell fetid; it is somewhat viscous; but I discover no astringency in it. Does it blacken a solution of vitriol?

“The leaves are insipid, but somewhat slimy, and nauseous a little. The roots are sweet, a little acrid and viscous: they redden little the blue paper, and the leaves redden it yet less. By a chymical analysis Solomon’s Seal gives almost only acid liquors and oil: a little earth and fixed salt is drawn from it, but no volatile salt. Schroder says that fourteen or fifteen of its berries, or radices ʒj. provoke vomiting. I know some persons who macerate ʒß of it in a glass of white wine, and cause those who have hernias to drink the infusion for whole months: the sick do not vomit at all, and are much eased, especially if at the same time the root be applied to the part.” *T. Hist.* p. 126. But Etmuller says it contains volatile salt; and T. does not cite his authority for the analyses, as is usual with him. — 2. All seem to agree that it is emollient, detergent, and cosmetic, externally. “Radix vulneribus efficaciter imponitur, ac maculas etiam in facie delet.” *Dioscor.* l. c. and *Galen* says the same. “Fœminæ utuntur eo modo quo amygdalis, ad absterisionem faciei. Discutit etiam sugillata, cum pugnos senserunt virorum.” *Hoffman.* 426. — 3. Hence it appears to be not saponaceous only, but also cathartic. T. says it did not vomit; but says not whether it purged or not; which probably it did; for I see not how otherwise it could give any ease in a hernia. However, the infusion in wine may differ from the substance, and fresh from dried roots. He owns the sliminess of the leaves (*donne de legere nausées*) occasions slight nausæ.

## POLYPODIUM.

### S E C T. I.

Polypodium, Polypodium quercinum, *off.* Polypodium vulgare, *B. P.* 359. *T.* 540. *Park.* 1039. *H. Ox.* iii. 562. Polypodium, *Ger.* 1132. *J. B.* iii. 746. *R. H.* 137. *Syn.* 117. Polypodium, fronde pinnata; foliolis lanceolatis, integris, ferrulatis, alternis, connato-fessilibus, *H. Cliff.* 475. Polypodium pinnatum, pinnis lanceolatis integris, *Fl. Lap.* 307. Polypody of the Oak.— This has a slender, tuberous, knotty, spreading root, brown without, greenish within, of a sweetish astringent taste at first, then disagreeably bitterish, and of an earthy scent. “Sapore 1<sup>o</sup> est dulci, tandem acerbo & adstringente.” *J. B.* “It is of a sweetish styptic taste.” *Mill. Bot.* 355. “Saporis dulcis.” *Nucl. Belg.* 233.

It

It grows on old walls, roots of old trees, in rocky and shaded places, almost every where; and all sorts equally good: though some prefer that growing on oak. “Polypodium nascitur in muscosis petris, & vetustis quercuum caudicibus, palmi altitudine, filici simile, subhirsutum & incisum, at non perinde tenui divisura. Radix subjacet pilosa, cirros habens ceu polyporum, crassitudine minimi digiti: hæc si derafa fuerit, coloris intus herbacei” *Comperietur: acerba vero est, atque gustu subdulcis, purgandi vi prædita.* *Dioscorid.* l. 4. c. 188. p. 319. “Planta quidem est vulgaris notitiæ: sed faciunt illam dubiam Arabes cum amarorem extremum, cum aromaticitate, qualis caryophyllorum est, tribuunt illi, cum neutrum habeat.” *Hoffman.* p. 47.

## S E C T. II.

It is antiseptic, attenuating, subastringent, and vulnerary; called purgative; and commended in obstructions in the viscera, cough, asthma, rickets, scurvy, jaundice, gout, &c.

“Educit bilem adustam, & pituitam lentam. Hinc utilissimum in obstructionibus mesenterii, epatis ac lienis, & inde natis passionibus hypochondriorum scorbuticis. Raro autem solum datur, sed aliis purgantibus fere admiscetur; & qui a segniter purgat, plerisque in decoctis vel infusionibus, raro in aliis formulis adhibetur.” *Schrod.* p. 771. “Datur ad alvum solvendam cocta cum gallina, aut piscibus, aut beta, aut malv. Aridæ farina aquæ mulsæ inspersa detrahit pituitam ac bilem. Trita eadem luttis efficaciter imponitur, & adversus rimas quæ inter digitos fiunt.” *Diosc.* l. c.

1. As in taste and smell, so in character, it comes near the filices. It has no irritating acrimony. *Mesue* is perhaps the first who called it hot in 3°, or hot at all. Neither is it very nauseous; and, if purgative at all, it is but very weakly so. “Nam révera Polypodium per se, haudquaquam purgat, sed ex jure veteris galli gallinacei, cum beta aut malva, aliisque lubricantibus alvum, decoctum, ad alvi lenitionem nonnihil tantummodo confert.” *Vide Dod.* 465; who says it is much commended on the Rhine for an arthritis vaga taken in decoction. — 2. “Analysed it yields several acid liquors, a little urinous spirit, no volatile salt, much oil, and a moderate quantity of earth. It also sweetens the blood, &c.” *T. Hist.* 519. It seems to contain an aluminous saccharine salt. — 3. It is much commended in many diseases; as in the dropsy, melancholy, quartan, &c. yet it is excluded the *London M. M.*

## S E C T. III.

It may be given in infusion or decoction to ounces. It is an ingredient in the electuarius lenitivum pro clystere. “The roots are frequently an ingredient in antiscorbutic diet-drinks.” *Mill. Bot.* p. 356.

“Dosis in substantia est ʒij. apud Aëtium, Actuarium, Oribasium, & Rufum. Vult *Mesue* a ʒij ad aur. iv. Hanc reprehendit *Monardus*, qui ad ʒj. dedisse se ait. *Fallopious* in decoct. & infus. incipit a ʒij. & definit in ʒβ.

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S f f

“Hoc



“Hoc rursus minus videtur Massariæ, qui cum Manardo 3j. attingit.” *Hoffman*. 48.

## P Y R E T H R U M.

### S E C T. I.

Pyrethrum, *offic.* Pyrethrum flore Bellidis, *B. P.* 148. *R. H.* 353. Pyrethrum, *Dod.* 347. Pyrethrum Officinarum, *Lob.* 447. *Ger.* 758. Pyrethrum vulgare officin. *Park.* 858. Pyrethrum Corymbiferum flore Bellidis, *H. Ox.* iii. 33. i. 10. *f. antepenult.* Pyrethrum alterum, *Matth.* 574. Buphthalmum caulibus simplicissimis unifloris, foliis pinnato-multifidis, *H. Cliff.* 414. *H. Upf.* 263. *Lin. M. M.* 139. Anthenus caulibus simplicibus, unifloris, decumbentibus, foliis pinnato-multifidis, *Lin. Sp. Pl.* 895. *H. Cliff.* *H. Upf. M. M.* Pyrethrum N. triviale. Chamæmelum speciosa flore; radice longa, fervida, *Shaw's Catal.* p. 39. “Buphthalmum Creticum; cotulæ facie, flore luteo & albo. *Breyn. cent.* i. p. 150.” *Geoff.* ii. 119. Pellitory of Spain.—This has a long hard root, about a finger thick, of a brownish colour on the outside, whitish within, of a fiery hot taste, and no smell.

It grows in Italy, also near Jena. “Crescit in montibus Moroni in Aprutio, non longe a Sulmone: item prope Jenam, teste Ruppio. Plantam communica vit D. Van Royen. P. B. Lug. Bat. Ob capitulum magnum & ponderosum, communiter decumbit caulis.” *H. Cliff.* 414. “It is brought from Tunis, *Lem. Diæt.* p. 450. *Sav. Diæt.* ii. 1106. “Ex orientis partibus infertur.” *H. Ox.* and *Dale* 96. “It grows in Spain, and other warmer countries, flowering in June and July.” *Mill. Bot.* p. 364. “Exsiccata nobis ex Tunetensi regno affertur.” *Geoff.* ii. p. 119. “It groweth in my garden very plentifully.” *Ger.* “It groweth in Spain, and diverse other countries.” *Park.* “Ex orientis partibus infertur. Nasci in quibusdam Italiæ montibus, sed minus acre, scribit Matthiolus.” *R. H.* “Radix digitalis fere est crassitudinis, longa, subruffo colore nigricans, gustu acri & admodum fervido: ex orientis &c. (ut in *R. H.*). In Belgii hortis satum adolefcit, & florem inclinante æstate facit: quæ si fervens, siccaque fuerit, semen etiam perficit.” *Dod.* p. 347. This is the Pyrethrum *Ph. Lond.* & *Edinb.* & *Officin.* There is another species mentioned by Lemery, Dale, Geoffroy, &c. but they do not agree in the plant it belongs to. It is the

Pyrethrum verum, *off.* Pyrethrum Umbelliferum, *B. P.* 148. *R. H.* 462. Pyrethrum Sylvestre, *Ger.* 758. Pyrethrum Umbelliferum primum, *Park.* 891. Pyrethrum Umbelliferum Matthioli, *J. B.* iii. 2, 20. Pyrethrum Umbelliferum latiore folio, *H. Ox.* iii. 296. True Pellitory of Spain. — Radix pollicis crassitudine, colore exterius ex fusco flavescente, interius nigro, sapore acri admodum & fervido; according to *Dale*, p. 129. But, according to the editors of *Geoffroy's M. M.*

“Pyrethri Radix altera est radix plantæ quæ dicitur Leucanthemum Canariense, foliis chrysanthemum, Pyrethri sapore.” *T.* 493. “Chrysanthemum fruticosum foliis linearibus, dentato-trifidis.” *H. Cliff.* 417. “Chamæmelium Canariense, ceratophyllum, fruticosius; glauco folio, crassiore; sapore fervido, magala ab incolis nominatum.” *H. Ox.* iii. 35. “Radice est alba,  
“lignosa,

“ lignosa, vulgari minus crassa, minus carnosâ, nec tantum fervorem possidentem.” *Geoff.* ii. p. 121. Is either right? N.B. In Cod. Medic. we have only one *Pyrethrum*, and only *Pyrethrum officinarum*, added as a synonymum.

“ *Pyrethrum herba est, quæ caulem foliaque profert uti daucus sylvestris & sceniculum: umbellam vero ceu anethi, circinatæ rotunditatis. Radix longa est, pollicari crassitudine, gustuque fervidissimo.*” *Diosc.* l. 3. c. 86.

## S E C T. II.

It is an acrid stimulating diaphoretic and diuretic; but used only externally in errhines, masticatories, cataplasms, clysters, &c. for apoplexies, lethargies, head-achs, tooth-achs, fixed pains, palsies, &c. as an attrahent, &c.

“ *Calfacit & siccât ultra 3; attenuat, incidit, sudorem valde movet. Usus præcip.* sed rari in viscoso phlegmate corporis, ac præcipue pulmonum, quod attenuat, atque per expuitionem ac urinam expellit; ad venerem stimulat; quartanam curat. Extrinsecus in odontalgia frigida, in batracho, apophlegmatizans insigne est: juvat & in hæmicrania; paralyfin & stupida membra sanat, rigores febris præcavet, (inunctis dorso & plantis pedum.)” *Schrod.* p. 658.

The taste is not immediately perceived, but it soon raises a glowing heat, affecting the lips as well as the tongue for a considerable time, so as to cause a plentiful discharge of saliva. “ The heat produced by *Pyrethrum* is joined with a kind of vibration, as when a flame is brandished with a lamp-furnace. . . . Being chewed it makes a sensible impression on the lips, which continues (like the flame of a coal betwixt in and out) for nine or ten minutes; but the heat in other parts much longer.” *Grew, Of tastes.* This heat however, though perhaps more intense, yet is by no means so painful as that which arum, iris, or laureola raises; nor is it so intense or so painful as the heat of capsicum. Might it not do service in quartans or palsies, &c. used inwardly? “ *Pituitam elicit, atque in dentium doloribus, decocta in aceto, collutione auxiliatur. Pituitam etiam commanducata extrahit, & ex oleo inuncta sudores ciet, contra diuturnos rigores efficax; quin & perfrigeratis resolutivæ corporeis partibus eximie conducit.*” *Dioscor.* l. c.

“ *Pyrethrum ἀπο τῆς πυρ* esse omnes concedunt, & est apud Galenum causticum, cujus radices usus in apophlegmatismis & errhinis. Pluribus non est opus.” *Hoffman.* p. 433.

## R A P H A N U S R U S T I C A N U S .

## S E C T. I.

*Raphanus Rusticanus, Raphanus Sylvestris, Armoracia offic.* *Raphanus Rusticanus, B. P.* 96. *Ger.* 241. *Park.* 860. *R. H.* 818. *Syn.* 301. *H. Ox.* ii. 237. *Raphanus Sylvestris sive Armoracia multis, J. B.* ii. 851. *Raphanis magna. Dod.* 678. *Cochlearia, folio cubitali. T.* 215. *Cochlearia, foliis radicalibus lanceolatis, crenatis, caulinis incis.* *H. Cliff.* 332. *Horse-Radish,*



or Redcole, has a thick and very long white root, of a very hot biting bitterish taste, and volatile pungent smell.

It grows by water sides, and in ditches in several places in England; and is now planted in almost every garden; flowering in July. It is marked as a Scotch plant in Mr. Sutherland's catalogue. Though I cannot assert that it is *ραφανίς ἀγρία* Dioscoridis, l. 2. c. 138. p. 135. or the Raphani genus quod Græci agrion vocant, *Plin.* l. 19. c. 5. p. 496, yet since both observe that the wild Raphanis, or Raphanus, was called Armoracia by the Romans, I make them synonyma, as many others do. I know *Schroder's* Armoracia (whom *Dale* follows) is the Rapiſtrum flore albo, filiqua articulata, *B. P.* or White-Charnock, or wild Radish; but I take this to be a mistake: for, according to him, crescit juxta rivulos, & *Officin. Nat.* Sola radix; neither of which agree to this annual plant; one of the English names of which is there Horse-Radish. Vid. *Schrod.* p. 538. "Vocatur Armoracia, si sponte sua nata sit, in locis paludosis; sin in horto colatur, tunc omnino Raphanus Rusticanus dicitur." *Herm. M. S.* which is not in the Cynosura.

## S E C T. II.

It is acrid, detergent, attenuating, diaphoretic, and diuretic; called antiscorbutic and lithontriptic; and commended in the scurvy, dropsy, palsy, asthma, inveterate agues, vapours, and in all cold phlegmatic diseases. Externally it is a noble sinapism.

"Calfacit & siccatur ad 3°, incidit, attenuat, tartaream mucilaginem incidit, ciet vomitum (si succus vel infusio in aceto, cum melle tepidè assumatur & aqua superbibatur). Specificè scorbuticis prodest, calculum pellit, mens ciet. Extrinsecus prodest in febribus (tertianâ & quartanâ). Succus cum oleo piperino dorso inunctus, pulsibusve, cum sale communi impositus, vel umbilico applicatus, donec sentiat. *Præp.* Aqua stillat." *Schrod.* p. 660.

1. It is very hot and biting, its smell draws tears; the distilled water is very pungent, and contains all its acrimony; and long dried or decocted it loses all its virtues. Its proper spirit therefore is volatile — 2. I infused it in boiling water, and after three days maceration the infusion was not tintured, being pellucid, white and clear like water; but smelled like the root, and was excessively and painfully hot and biting in the mouth. It diluted syrup of violets, and made it a very little greenish, that is, more so than when diluted with common water. It turned a solutio heliotropii almost to a ruby colour. It did not alter the colour of a solution of green vitriol, but, in a day's standing, precipitated a white sediment, which calcined became red like colcothar. Hence water easily extracts its virtues, and though alcalescent it is not an alkali. — 3. Though its spirit flies off when long kept, yet it is not so soon as is generally believed. For I kept it not only till it was so dry that it might have been powdered, but for more than six months, and found it retained its hot taste; but at length it lost it, and became very bitter. Yet the author of the *New Dispens.* says, "It contains in some vessels a sweet juice, which sometimes exudes upon the surface. By drying it loses all its acrimony, becoming first sweetish, and afterwards almost insipid." p. 189. — 3. Externally.

ternally applied, it inflames and blisters the skin: yea if, after handling this root, the face be rubbed with the hands, it will raise a swelling and inflammation; (*expertus loquor*). Hence it is a powerful epispastic, as good as garlick, and not fetid, somewhat stronger than mustard; and needs only to be bruised and applied. It occasions no strangury, like the cantharides, yet is as effectual in tooth-achs, sciaticas, and other fixed pains, in palsies, fevers with eruption, &c. As a detergent for cuticular diseases it is preferable to nasturtium. “*Vesicatorium.* R Rad. Raphani Rusticani contritæ ʒß. applica ad cutim “ per horæ dimidium, aut tamdiu, donec inflammationem satis magnam excitatam dolor fervidus, & rubor partis tumens, testetur.” *Boerb. Lib. de M. M.* p. 45. And—4. Internally it is of great use in diseases ab acido, glutinoso spontaneo, inertia bilis, laxitate fibrarum, &c. In scurvies, dropsies, palsies, lethargies, some obstructions of urine, &c. but that it is a proper lithontriptic cannot be granted.

“ Senex Monachus, cum sentiret se calculis vexari, Raphanum Rusticanum “ tenuiter infecabat, in linteolum reponebat, & in vino macerabat, & mane & “ vesperi, cum vellet ire cubitum, poculum ebibebat per triduum, hoc solo “ remedio usus, non vexatus amplius fuit a doloribus ob calculos & arenas,” *J. B.* “ Raphani Rusticani vires in calculo, ab experimentis deprædicat Thomas Bartholinus *Act. Med.* 1676. Obs. 38 & 39: affirmat succum Raphani “ resolvisse calculosam substantiam e corpore humano exemptum.” *R. H.* “ I pounded severally onions, scurvygrafs, and horse-radish roots, and put “ the pulp into three pots, in the middle of which I put very hard calculi, “ which were all taken out of the same person. I pressed the mash hard “ down, and set the pots in a hot bed for thirteen days. The scurvygrafs “ and horse-radish had no sensible effect on their calculi. But the surface “ of that which was put into the onions was so soft, that I could scrape it off “ with my nail; and it was the same when I put a like calculus into onion- “ juice mixed with water, which was kept warm in a chimney-corner for fifteen days, in which liquor the reddish gritty gravel of two other persons “ was at the same time dissolved.” *Hales’s Stat. Eff.* Vol. II. p. 215.

“ *Armoracia* in scorbuto, morbisque soporosis, specificum est. In appetitu quoque tam profecto, quam aucto ab acido copiosiore, singularissima. “ Externe plantis pedum in cataplasmate applicatur. Additur diureticis stimuli loco.” *Herman. M. S.*

### S E C T. III.

It may be given to ʒj, yea to ʒß, if well covered, or mixed. It is frequently used in fauces, as well as in diet-drinks. *Aquæ Raphani comp.* ʒj. is enough at a time, even to persons who have accustomed themselves to drink drams. It is used in the *aqua petroselin. composita.* Vide *Lewis’s Pharm.* p. 115.



## RHABARBARUM.

## S E C T. I.

Rhabarbarum, Rheum Barbarum, *offic.* Rhabarbarum *officinarum*, *B. P.* 116. Rhabarbarum, *Matthiol.* 479. *Garz. Clus.* 207. *Acoſta, Clus.* 274. *J. B.* ii. 989. and 1069—1073. *Ger.* 393. *Park.* 155. *R. H.* 170. Rhubarb—is a very large root, brought to us in pieces of different magnitudes (sometimes five or six inches long, and three or four thick, commonly with a hole in the middle) of a brownish yellow colour on the outside, and in some places blackish, yellow within and marbled or variegated with reddish veins and spots; of a bitterish nauseous and astringent taste, tinging the spittle like saffron; and of pretty strong smell.

Choose such as is dry, reasonably firm and heavy, well marbled within, as free from black spots as may be, of a right taste and smell, gritty between the teeth, not clammy or glewish in the mouth, and which gives a good deep yellow tincture to the saliva or water. The best Rhubarb is firm and somewhat heavy, not spongy and light, somewhat brown but fresh on the outside, without many blackish spots, which do not run far inward, which though they do the rest may be good, and which is very much discoloured with flesh-coloured veins running through it; bitter in taste, and somewhat aromatic in smell, especially if it be fresh, and causing the spittle to be yellow being a little chewed in the mouth." *Park.* "Eligendum est recens, non cariosum, non putridum aut nigrum, quod aquam croceo colore tingat, nihilque lentoris aut glutinosi linguæ offerat: sapore subacri, amari-cante & nonnihil astringente, odore aromatico, sed nonnihil gravi. Apud Sinas nascitur." *Geoff.* ii. 123.

It is brought from Turkey, and from the East-Indies; and of late likewise from Muscovy. It is said to grow in Great Tartary, the northern parts of China, and in Siberia. "Siberia produces abundance of excellent Rhubarb. The Muscovites know not its value, and sell it at ten copees (*i. e.* under a shilling sterling) per pound. But a Hamburgh merchant, having for 30000 roubles (*i. e.* 6750 £. sterling, a rouble being fifty pence, *Sav. Diſt.* iii. 2. p. 530.) purchased the sole privilege of selling it, transported a great quantity of it to Hamburgh and Holland, which he sold at the rate of eight ryks daalders per pound. This opened the eyes of the Muscovites, who, taking the trade into their own hands, sent too great a quantity to Holland, and, valuing it too high, got no sale for it at Amsterdam, where it remains spoiling in the magazines." *Sav. Diſt.* iii. 2. p. 526. printed in 1732.

It is still uncertain perhaps what plant the rhubarb is the root of. Many have thought it the Rhaponticum. Matthiol, and from him, and probably from him only, Muntingius describes another plant for it, of which however we yet know no more than they have told us. And it is doubted whether there is such a plant in nature. Vide *Geoff.* ii. p. 123. But there is a third plant, which was within these few years (*viz.* in 1732.) sent from Russia to Mess. Jussieu's at Paris, and Mr. Rand at London, for the true Rhubarb. It is described by the editors of *Mr. Geoffroy's M. M.* ii. p. 125. by the name of Rha-

Rhabarum, folio oblongo, crispo, undulato; flabellis sparsis. It is the *Lapathum orientale*, bardanæ foliis undulatis. An Rhabarbarum *H. Chels.* p. 109. & *Lapathum orientale*, folio latissimo, undulato & mucronato, sive Rhabarbarum verum, *Mill.* vol. ii. Planta hæc? "Rhabarbarum, Rha sive Rheum quorundam; Rhabarbarum, folio longiore hirsuto, crispo; flore thyrso longiori & tenuiori, *Amm. Stirp. rar. Ruthen.* 7. R. folio oblongo, crispo, undulato; flabellis sparsis." *Geoff. M. M. Cod. Med.* p. xcvi. Rheum foliis subvillosis, petiolis æqualibus, *Diff. de Rhab.* p. 1. *Sp. Pl.* 372. Rhabarbarum. *n. t.* Habitat in China ad murum, & in Siberia. *Ibidem.* "Quam veram Rhabarbari speciem esse, ex illius fructificatione dubitare non licet. Illam autem esse quoque legitimam Rhabarbarum Sinense, præterquam quod ut talis missa dubitare vetant convenientia feminum hujusce plantæ, cum veri Rhabarbari feminibus e Sina missis a D. Vandermonde, M. D. Parisiensi, radicum forma, facies eadem, idem color, odor, & sapor." *Geoff.* ii. p. 125. "The seeds of the fourteen sorts I received for the true Rhubarb were gathered by a gentleman who was on the spot, where the roots are taken up, and sent to Petersburg in Muscovy, for the supply of Europe; so that there is no great reason to doubt of its being the true kind." *Mill. Dict.* l. c.

In 1745 I had sent me by *Mr. Fordice* the seeds of this plant, of which I raised several sets. It endured our hardest winters, and flowered in June, but has not perfected the seed; though it does it in the north of England, and probably will do it here also, when the roots are stronger. It is evidently a species of the Rhabarbarum. *T.* but I think there is reason to doubt of its being the true Rhubarb: and indeed, if what I had sent me for its root was genuine, I found by several experiments that it differed more from the Rhabarbarum than our common Rhaponticum does: of which afterward.

"In a weakness of the liver and a dysentery, he (Alexander) takes notice of Rhubarb: a plant, if I mistake not, first mentioned by this author; though *Mr. le Clerc* tells us, that the Arabians introduced the use of it. The Arabians, indeed, in translating *Dioscorides*, and the Greek physicians, confound this root with the Rhaponticum, & ascribe the virtues which the ancients have observed in this latter to what is properly the Rhabarbarum: as may be evident to any who will look into the description which *Rhazes* gives of it. And I believe *Alexander* himself, though it was plain Rhubarb was known in his time, was in the same mistake; for he mentions it only as an astringent, as the elder Greeks describe the Rha-Ponticum, without the least hint of its purging virtue. *Paulus* seems to be the first who takes any notice of the purging faculty in the rheum (he calls it simply so), and tells us how we may make some laxative medicines stronger by the addition of this." *Vide Freind. Hist.* i. p. 113. *Alexander*, l. 8. c. 3. col. 243. mentions Rheum barbaricum: but whether it was our Rhabarbarum, I know not: nor do I think it certain that *Paulus* meant it in the place referred to by the doctor. "Veteres quidam ad sanitatem satis esse putabant quotidie evacuare per ventrem & urinas inculcate ac sufficienter, pro ciborum ac potuum ingestorum copia. Et si quidem evacuationes pro ratione fiebant laudabant, sin minus opitulabantur, mixtioni quidem per scandicem, apium, asparagum. . . . Verum ventri opitulabantur terebinthinam dantes, olivæ magnitudine devorandam dormituris: si vero magis subducere volumus, de Rheo parunt

"admisce.



“ admiscemus.” *Paulus*, l. 1. c. 43. p. 357. But since, l. 7. c. 3. col. 638. in describing the virtues of Rheum, he only abridges Dioscorides and Galen, without the least hint of its purging virtue: and since we find the same passage in *Oribasius*, thus: “ Veteres nonnulli existimarunt satis esse ad bonam valetudinem tuendam, si quotidie alvus inaniretur, urinaque sine vitio procederet: atque ejus tantum quanta esset esculentorum poculentorumque copia. Hæc si non fiant, succurrendum est: atque urinæ quidem ciendæ est scandix, apium, sceniculum, asparagus: alvum porro subducit terebinthina, ad olivæ magnitudinem dormitum euntibus in catapotio data. Si quis subducere magis velit, parum nitri adjungat.” *Oribas*, *Euporist.* l. c. 9. col. 577. It is not improbable that it should be nitrum in *Paulus* also; and that Mr. le Clerc may be in the right.

## S E C T. II.

Rhubarb is an attenuating diuretic, and astringent cathartic; called stomachic, hepatic, scorbutic, and anthelmintic; and commended in want of appetite, obstructions in the viscera, jaundice, cachexy, diarrhœa, dysenteria, gonorrhœa, scurvy, worms, fluor albus, &c. being no less safe than efficacious for young and old, male and female.

“ Purgat benigne bilem flavam, pituitamque viscosam ac tartaream in ventriculo, primaque regione stabulantem. Epatis specificè confert, adeo ut cor epatis dicatur; curat icterum, & quia vim quoque astrictoriam obtinet in omnibus morbis dissolutis, dysenteria, diarrhœa, præ aliis commendatur. Corrigitur  $\frac{1}{2}$  cinam: schœnanthos, fantali citrini. Dosis a ʒj. ad ʒiʒ; in infuso ad ʒʒ. . . Est ex omnibus catharticeis usitatissimum, sine ullo periculi metu omni ætati, atque ideo etiam pueris & prægnantibus conveniens. *Præp.* 1. Rhabarbarum conditum. 2. Syr. de cichor. cum Rhabarb. 3. Syr. de Rhab. solutivus. 4. Syr. diasereos. 5. Troch. de Rhab. 6. Pil. de Rhab. 7. Extractum Rhabarbari. Dosis a ʒj. ad ʒj.” *Schrod.* p. 773.

1. As it is no ways acrid, but bitterish, and to many very nauseous to the taste, so it is evidently styptic, and turns a solution of green vitriol black. I poured aquæ bullientis ʒiv. on Rhab. ʒj and when it had stood a day decanted the infusion, and added as much boiling water to the remainder; yea I repeated this to the sixth time, and still the solution of vitriol made it black. Yet *Mr. Bolduc* says: “ Although it is rough to the taste, and loses its purgative quality by roasting, yet its astringency is demonstrable by none of its effects.” *Mem. Acad.* 1710. p. 217. — 2. It loses nothing by drying, keeps good many years; and roasting, unless it be burnt, does not deprive it of its purgative quality. “ Nonnulli levi tostione vim purgantem minui, & astringentem augeri sibi imaginantur, quod alii improbant, nec immerito; etenim cum vis purgans fixior sit quam ut levi tostione in auram evanescat, tostio illa vix satisfaciet. Præstat itaque si astrictoriam vim auctam velimus, reiecta prima decoctione, denuo id coquere, ac fortissima expressione exprimere.” *Schrod.* l. c. But its decoction diminishes its astringency, as well as its cathartic quality. The powder is much better; to which astringents may be added, *pro re nata*. The Rhubarb brought by sea from the East-

Indies, if not rotten, is as cathartic as the Turkey Rhubarb, as has been found, I am informed, by experiment: and sure I am it tastes as well. — 3. Its virtues are best extracted with water. According to *Mr. Bolduc* Rhabarbari ʒij, by repeated infusions and decoctions in water, yielded extracti ʒj. gr. x. and of residuum about ʒvj. (so that about ʒij. evaporated). But from Rhubarb ʒj. with sp. vini, he got only extracti ʒiʒ. and residui ʒvj: the tincture did not turn water milky. The extractum resinofum, he says, given to ʒiʒ. purged a little, and very gently. Rhab. pulveris ʒj. purges more than the infusion of ʒiʒ: and this more than the extract of ʒiij. “Ex Rhab. ʒij. aquæ communis ope extracti ʒj. gr. xij. elicitor: ope sp. vini ex Rhabarbari ʒij. vix ʒiij. extracti obtinentur. Hocce extractum, ob salis copiam, aqua communi facile dissolvitur.” *Geoff. ii. 127.* — 4. It soon tinctures the urine, even much sooner than it purges, at least sometimes. “Si quis accipiat tantum Rhabarbari, quanta est magnitudo unius grani ciceris, & mandat ore, deglutiatque, atque inde ad duas horas mingat, videbit lotium coloratum, ac si croco esset tinctum.” *Fallop. de purg. cap. 34. p. 111.* Hence its purgative quality is not the sole effect of its stimulus. And—5. It is void of all malignity, and as safe as any purgative can be; and of great use as an alterative as well as a cathartic. Some call it the panacea infantum; others anima & cor hepatis.

“Veruntamen Rhabarbarum non prorsus innocuum existimandum est. Alvum enim exsiccatam relinquit, renes, vesicam, & cerebrum petit. . . . Fallopius Rhabarbaro exprobrat, quod renum & vesicæ affectibus noceat; his enim in partibus ardorem accendit. Sim. Paulli diuturniorem & frequentiore Rhabarbari usum vertiginem induxisse observat. Unde concludendum est Rhabarbarum etiam cautione indigere.” *Geoff. ii. p. 127.* But let us hear *Fallop. de purg. c. 34. p. 111.* “Si quis accipiat tantum Rhabarbari, &c. (ut supra). Cum itaque petat vesicam, necessario trahit secum arenulas quas reperit in itinere, nec non materias falsas & acres, & ideo augetur urinæ ardor: id ipsum facit cassia, quamvis refrigeret & humectet, quoniam & ipsa diuretica est, trahitque secum ad vesicam materias sabulosas, falsas, & acres. Hoc incommodo excepto, quod scilicet auget ardorem urinæ, nullum aliud Rhabarbarum habet incommodum.” Before this he says, “Revera nullum est medicamentum tutius, quia exhibetur tuto etiam iis qui morituri sunt, & jam fere spirant animam. Verum ego observavi (licet nullus alius quidpiam dicat de hoc) quod obest uni parti, & sic sic unum tantum habebit incommodum; atque illud est, quod maxime lædit illos qui patiuntur ardorem urinæ, quod in quamplurimis observavi, & vidi quod quamdiu vis Rhabarbari perdurat in corpore, tamdiu etiam & magis affligit ardor; quoniam præterquam quod Rhabarbarum evacuat est etiam diureticum, & petit renes & vesicam, ut patet ex eo quod si quis accipiat, &c.” ut supra. So all that can be laid to its charge is, that it is diuretic: a valuable quality; and with which Cassia is as chargeable as Rhubarb, though much commended by *Mr. Geoffroy* even in ardore urinæ. Vide *M. M. vol. ii. p. 349, 350.* Now “si ita petat renes & vesicam,” surely it cannot at the same time “petere cerebrum:” so *S. Pauli*’s vertigo must have had some other cause. Besides, any medicine may be abused; though there is as little danger in exceeding in Rhubarb as in any efficacious



remedy that I know. Is Rhabarbarum in *S. Paulli's Q. Botanicum*? He does not treat of it directly, but *obiter* in Rubia. See there the passage referred to by Mr. *Geoffroy*, viz. p. 455. Is it “valde fumosum;” or are its “fal & sulphur valde volatilia?” as *S. P.* makes them.

## S E C T. III.

It may be given in substance to ʒij: in infusion to ʒiv. We have three tinctures of it, viz. *Tinctura Rhabarbari*, *Tinctura Rhei amara*, & *Tinctura Rhei dulcis*; which are of equal strength with regard to the rhubarb. The menstruum of the first is weak cinnamon water: and it may be given to ʒvj, which is the infusion Rhabarb. ʒß: but ʒiv. are seldom exceeded. The other two are tinctures in brandy; and given to ʒj. or thereabouts. . . . Rhubarb is an ingredient in the Elixir Sacrum, Elixir Salutis, Syrupus de Sena & Rheo, Pilulæ Mercuriales laxantes, & Pilulæ Stomachicæ.

“Datur a ʒj. ad ʒiij. Mesue; ad ʒij. Avicenna & Serapione.” *Hoffman*.  
 “A ʒj. ad ʒij. Dodonæo, Sennerto, Rondeletio, Heurnio, Riolano.” *S. Pauli*.  
 “ʒj. ʒiij. ʒij.” *Bates*. “à ʒß. ad ʒij.” *Quincy*. “à ʒj. ad ʒiv.” *Fallopio*.  
 “Ego vehementer dubito an per rerum naturam fieri possit ut adimatur Rhabarbara vis tota purgatoria.” *Hoffman*. p. 54. “Nos in dysenteria Rhabarbarum tostum bono cum successu usi fumus etiam in corpore nostro.” *R. H.* . . . *Hoffman*. p. cit. No. 18. says, “In infuso plus purgat quam in substantia.” He might have added *citiùs*, but not *fortiùs*.

Many authors have wrote on Rhubarb, as *Campegius*, *Odonus*, *Bettus*, *Durantes*, *Filingius*, &c.

## R H A P O N T I C U M.

## S E C T. I.

*Rhaponticum offic.* *Rhaponticum folio Lapathi majoris glabro; Rha, & Rheum Dioscoridis, B. P. 116. Rhaponticum, Alpin. Ex. 188. J. B. ii. 989. Rha verum antiquorum, Ger. 393. Hippolapathum maximum rotundifolium, exoticum, sive Rhaponticum Thracicum; sed verius Rhabarbarum verum. Park. 154. Lapathum præstantissimum, Rhabarbarum officinarum dictum, H. Ox. ii. 577. H. L. 352. Rhabarbarum Alpini. Ex. R. H. 170. Rhabarbarum forte Dioscoridis & antiquorum. T. 89. Rheum, H. Cliff. 155. True Rhapontic, or English Rhubarb—is a root very nearly resembling the former, only it is not gritty between the teeth: it is of a subviscid subastringent bitterish but at last sweetish taste; not disagreeable to either taste or smell.*

It grows in Thrace or Romania, particularly in the mountain *Rhodope*, whence *P. Alpinus* (*Professor Simplicium at Padua*) procured it about the year 1610: where plentifully increasing, all the gardens of Europe were soon furnished with it. It is a native also in several places of *Tartary*. The severest winters cannot hurt it. It flowers in May or June, and the seed is ripe in Autumn. “The Rhaponticum, as it is reported, grew in Thracia, and from thence

“ thence brought to Prosper Alpinus at Padua, from whence some apothecaries  
 “ in Venice had it; and Dr. Matthew Lister, one of the king’s physicians,  
 “ being in Venice, obtained three or four seeds, which he sent me; and with  
 “ me (as I think the first in this land) they sprung up, grew and seeded within  
 “ two or three years; and from them both I and many other my friends, as  
 “ well in England as beyond-sea, have been furnished.” *Park.* 157: who de-  
 scribes it, and gives the figure of the plant in flower in his *Paradisus* (published  
 in 1629) p. 483.

This is the true Rhapontic, in the opinion of many. *Vide P. Alpini De Rhapontico Disputatio, in Gymnasio Patavino habita; Patavii 1612.* and compare with it what answers are given to it by *Bodæus a Stapel in Theoph.* p. 802. Surely the following description does not badly agree with this plant. “ Rha,  
 “ quod aliqui Rheon (ῥέον) vocant, provenit in iis quæ supra Bosporum sunt  
 “ regionibus, ex quibus etiam affertur. Radix foris nigra, Centaurio magno  
 “ similis, sed minor, ac intus rubicundior, sine odore, laxa seu fungosa &  
 “ aliquantum levis. Optimum habetur quod teredines non sensit, si gustatu  
 “ cum astrictione remissa lentescat, & commanducatum colorem reddat pal-  
 “ lidum, & quodammodo ad crocum inclinantem.” *Dioscor.* l. 3. c. 2. p. 171.  
 “ At vero hæc descriptio Rhapontico P. Alpini, seu officinarum, apprime  
 “ convenit.” *Geoff.* ii. p. 130. It is however taken for the Rhaponticum by  
 many of the learned, and may be used as such.

## S E C T. II.

It is an attenuating deobstruent, diuretic, purgative, and astringent; classed amongst the vulneraries, splenics, and hepatics; and commended in obstructions of the viscera, cachexies, scurvies, fluxes, hæmorrhages, spleen, vapours, &c.

“ Rhaponticum verum. Radix calf. & sicc. 2. seu mixturæ temperatæ est,  
 “ terrestris & igneæ, saporis subacris, stomachica, splenica, ac hepatica. *Ufus*  
 “ *præcip.* in doloribus arthriticis, febribus, venenatorum animalium ictibus,  
 “ &c. *Præp.* Extractum, l. c. summum est cardiacum. *Querc. Phar. Rest.*”  
*Schroder.* 662.

1. It is subviscid, sweetish, and pretty agreeable to the taste; neither so astringent nor so bitter by far as the true Rhubarb. “ Amarore vix evidente,  
 “ & fere dulci sapore prædita est, cum adstrictione admista. Sputum etiam  
 “ tingit commansa.” *J. B.* “ It gives a yellow tincture to the spittle when  
 “ chewed, but not so much, nor hath that bitterness and astriction therein,  
 “ that the Indian Rhubarb hath.” *Park.* p. 155. “ Saporis est amaricantis  
 “ & subastringentis, odoris non ingrati.” *Dale* 139. “ Sapor ejus subdulcis,  
 “ Rhabarbaro minus amarus, & mucilaginosus; odor non est aromaticus.”  
*Nucl. Belg.* 245. “ Odore non ingrato, sapore amaricante, subastringente &  
 “ subacri, lenta & glutinosa si paululum in ore detineatur.” *Geoff.* ii. 130.  
 —2. I have tried the Rhaponticum, and found it by experience to purge  
 gently, without that astriction that is in the true Rhubarb brought from the  
 East-Indies. It is also less bitter; whereby I conjecture it may be used in hot  
 and feverish bodies more effectually, because it doth not bind after the purg-



ing: but this must be given in double quantity to the other, and then no doubt it will do as well. "The leaves have a fine acid taste." *Park. par.* p. 484. — 3. *Dioscorides*, l. 3. c. 2. commends his Rha in many diseases. "Id epotum facit ad inflationes, stomachi imbecillitatem, & omne genus doloris, ad convulsiones, spleneticos, hepaticos, nephriticos, torminosos, itemque adversus velicæ & pectoris vitia, distensiones hypochondriorum, ictericos affectus, ischiadas, sanguinis excreationes, suspiria, singultus, dysenterias, & cæliacorum affectus, contra febrium circuitus, & venenatorum morsus:" then adds, "Dabis vero ad singulos affectus, eodem quo agaricum pondere (i. e. ad ʒj. aut alteram) & cum iisdem liquoribus: scilicet febricitantibus in vino mulso; febricitantibus autem, ex aqua mulsa; phthisicis ex passio; spleneticis ex oxymelite. At a stomachicis ita ut est mandetur, ac citra forbitionem ullam devorabitur:" and concludes, "Cæterum summa ipsius vis, astringens est cum aliquanto colore." How just this is I shall not say; but I think Rhubarb has a better claim to most of these qualities than our Rhapontic. Upon the whole, it is very evident that Rhubarb is both much more astringent and more purgative than this Rhapontic. Yet *Mr. Geoffroy, M. M.* ii. 131. says, "Radix Rhapontici moderatè purgat. pulverata ad ʒij. vel ʒß. infusa vel decocta ab ʒß. ad ʒvj. (*bad proportions*); sed potentius astringit quam Rhabarbarum verum: unde in diarrhœa & dysenteria non spernendum remedium."

To determine with the more certainty wherein the Rhabarbarum, Rhaponticum, and the formerly mentioned new Rhubarb, agreed, and wherein they differed, I put a part of each into a separate tea-pot, viz. into pot, No. 1. of seven-year-old Indian Rhubarb ʒij; into pot, No. 2. of yet older Rhapontic ʒijß; into pot, No. 3. of the new Rhubarb, which lay in a window about three months, but was still soft, ʒv. and poured into each pot aquæ bullientis ʒiv. After they had stood macerating twenty-four hours I compared them as to their colour, taste, and smell; and also the effects which equal quantities of oleum tartari, spiritus vitrioli, solutio vitrioli, syr. violarum, tinctura heliotropii, & aqua calcis, had on equal quantities of these infusions; and thus (a) found that the infusion, No. 1. was of a saffron colour, not very transparent; and of a bitter nauseous and styptic taste. No. 2. and 3. were a little paler, especially No. 3. and more transparent; scarcely bitter, or styptic, and not nauseous, rather sweetish: the first smelled much stronger than the other two. — (β) Oleum tartari made all three much redder. No. 1. was almost opaque; No. 2. and 3. still transparent: all smelled a little urinous; the first was most so, and as it were fishy-scented. Next morning all three were almost blood red, or rather redder than mum: No 1. was deepest; No. 3. palest; No. 2. betwixt the two; the first being opaque, and the other two semipellucid: all smelled of their roots, not at all urinous. — (γ) Spiritus vitrioli turned the liquor in No. 1. thick like milk, and of a light yellow colour, quite opaque; No. 2. was a little deeper yellow, not so thick, nor so opaque; and No. 3. was a little paler and more milky than the second. All retained their proper scent; and the third only precipitated a little pale sediment, or mucus. — (δ) With solutio vitrioli all became opaque and black. No. 1. dyed deepest: and No. 3. least; neither did it, as did the other two, precipitate after standing a night. When filtered through paper, they became of a dark green;

No. 1.

No. 1. opaque; No. 2. and 3. semipellucid. Spirit of vitriol destroyed the green, and made all clear. — (ε) Neither syrup of violets nor tincture of turnsole made any observable change on any of the three; of which perhaps their own tincture was the cause. And — (ζ) *Liply*, Aqua calcis had much the same effect on all the three infusions as the oleum tartari per deliquium. This last mixture was made three days after the first; having kept β and δ a day each, to observe what change this time made on them. And then No. 1. and 2. had the same appearances as at first; but No. 3. was become turbid, mucilaginous, and fetid; probably because the root was not well and thoroughly dried. Upon the whole I think it is evident, 1. That No. 2. comes nearer to No. 1. than does No. 3. 2. That No. 2. and 3. agree much in virtues. But, N. B. No. 3. seemed a little spoiled in its colour. The experiments therefore should be repeated.

## R U M E X.

## S E C T. I.

Lapathum, Lapathum acutum, Oxylapathum *offic.* Lapathum folio acuto, plano, *B. P.* 115. *T.* 504. Lapathum Sylvestre, sive Oxylapathum, *Dod.* 648. Lapathum acutum, sive Oxylapathum, *J. B.* ii. 983. Lapathum acutum, *Ger.* 388. *H. Ox.* ii. 578. *R. H.* 173. *Syn.* 142. Lapathum acutum majus, *Park.* 1224. Rumex floribus hermaphroditis, valvulis dentatis, granulo incumbente auctis, *H. Cliff.* 138. Sharp-pointed Dock.

This is commonly reckoned the officinal species: but the Lapathum folio acuto crispo, *B. P.* 115. *T.* 504, Sharp-pointed Dock with curled leaves; or Lapathum folio minus acuto, *B. P.* 115. *T.* 504, the most common great broad-leaved Wild-Dock, is commonly taken for it: and it matters not which of the three is taken. The Dock which is commonly used in the shops, and “which has, I believe, been always used, is the Common Dock, or the Lapathum Sylvestre, folio subrotundo, *B. P.*; Lapathum Sylvestre vulgatus, “or Common Dock, *Park.* whose leaves are sometimes sharp-pointed, and “sometimes round. As for the Lapathum acutum *R. H.* it seems to be the “Lapathum acutum minus *J. B.* and the Hydrolapathum minus *Park.* and “*Lob. Icon.* which has a small root, full of small strings at bottom, and is “seldom or never used. But the root of the Common Dock is pretty large “and thick, running down deep into the earth, brown on the outside, and “having a thick deep yellow and sometimes a little reddish bark, with a thick “rough hard pith in the middle of a paper colour. It grows every where “in moist places, and among ruins and rubbish.” *Mill. Bot.* 256. In all which he seems to be pretty right: only it is not Lapathum Sylvestre, folio subrotundo *C. B.* for there is no such name in *B. P.* edit. 1671, neither in *B. Φυτοπναξ*, edit. 1596. *R. H. Syn.* and *H. Chelf.* quote the 115th page of the *Pinax*, where it is Lapathum folio minus acuto; and in the *Phytop.* Lapathum folio subrotundo.

Lapathum à λαπαζω, evacuo, à λαπτω, idem: Latine proprie Rumex, as in *Pliny*, b. 20. c. 2. p. 535.



" Aut herba Lapathi prata amantis, & gravi

" Malvæ salubres corpori," . . . *Horat. Epod. Od. 2. v. 57.*

Sic *Satir.* l. 2. Sat. 4. v. 27.

" ——— Si dura morabitur alvus,

" Mitulus & viles pellent obstacula conchæ

" Et Lapathi brevis herba. . . .

*Dioscorides*, l. 2. c. 140. has four Lapatha, of which one is called Oxylapathum, from the form of its leaves, not from the acidity. " Est e Lapathi generibus, says he, quoddam quod Oxylapathum vocant, in palustribus nascens, urum, ac summis foliorum partibus aliquantulum acuminatum." *Dale* has five or six Lapatha, all much of the same nature, except the Hydrolapathum offic. or Lapathum aquaticum folio cubitali, *B. P.* 116. The great Water-Dock: which is the *H. Britannica antiquorum vera*, according to *Muntingius*; and one of the most styptic roots that I know, exceeding, I think, even bistort. *Geoffrey* has nine Lapatha, besides Spinachia, *M. M.* Vol. II. p. 663—683. The *Old Lond. Pharm.* had three Lapatha, viz. Oxylapathum, Hydrolapathum, & Hippolapathum: but the New one has altogether sent them packing, and the Rhapontic along with them.

## S E C T. II.

It is more bitter than the Rhapontic, more nauseous, and probably more cathartic; and is commended in the scurvy, cachexy, dropsy, green-sickness, jaundice, wounds, ulcers, scabies, and other diseases of the skin. It is used chiefly in diet-drinks inwardly; and in decoctions and ointments outwardly. It is an ingredient in the Ung. Antipsoricum.

" Lapathum acutum temperatæ censetur naturæ in activis, alias ad siccitatem inclinat. Semen alvum obstruit; folia subducunt. Radix usque crebri & præcipui est in scabie extergenda ac siccanda, idque extrinsecus, potissimum in lotionibus. *Præp.* Aqua stillat. ex radice commendatur maximopere ad cutis maculas & pustulas, alphas, jonthos, vitilignes, & lichenas." *Schrod.* p. 612. " Radix aperit, detergit, alvum laxat, & refrigerat. Valet ad hydropem, cachexiam etiam virginum, icterum, & specificè ad lueem veneream, scabiem, cæteros morbos cutis pruriginosos, & erysipelatam. Datur ordinariè in decocto ad ʒj. aut ʒij." *Nucl. Belg.* p. 157. " The roots are aperitive and cooling, and much used to cleanse and purify the blood, to free it from its salt sharp humours; and they are good for the scurvy, rheumatism, and all manner of itchy scabby eruptions: for which purpose they are frequently put in diet-drinks and apozems, and used outwardly in ointments." *Mill. Bot.* p. 257.

1. The root is very bitter, and pretty nauseous, but scarcely styptic; and smells somewhat disagreeably when green. " The root of Lap. folio acuto, crispo *B. P.* is very bitter, astringent, and reddens (*assez*) the blue paper. " The leaves are sourish, and redden (*vivement*) the same paper." *T. Hist.* p. 22.  
—2. I poured boiling water on the root, and when it had stood a day or two the

the infusion was of a straw colour, bitter, and somewhat astringent: it turned black with a solution of vitriol, but soon precipitated, and became clear and green above. Sp. vitrioli clarified it again, and made it paler than at first.—3. *Dioscorides* gives many virtues to his *Lapatha*; and makes them all, and the *Hippolapathum* too, of the same nature.

“Caro quæcunque, quantumvis vetus & dura, si cum *Lapatho* cujuscunque generis coquatur, mollis & tenera evadit. *Langham. Hort. San.*” *R. H.* 174. There is an analysis foliorum, and another radicis *Hydrolapathi* in *Geoff.* ii. 676. but the oleum is omitted in the last; and the jactura in both. “Analyti chymica ex *L. folio rotundo Alpini* *J. B. radicum lbv. prodierunt humorum lbiv, ʒiij, ʒj, gr. xlviij: olei spissi ʒj, ʒiij, gr. xij: carbonis ʒviiij, ʒiiij; unde cinerum ʒj, ʒv, gr. xxiv, & inde salis fixi alcali ʒβ, gr. vj, (ergo terræ ʒj, ʒj, gr. xviij:) & jactura fuit ʒiij, gr. xlviij.” *Geoff.* iii. p. 670.*

RUBIA. *Vide supra*, p. 376.

RUSCUS. *Vide supra*, p. 386.

## S A R S A P A R I L L A.

### S E C T. I.

*Sarsaparilla*, *Sarfa*, *Salsaparilla offic.* *Smilax aspera Peruviana*, sive *Salsaparilla*, *B. P.* 296. *R. H.* 656. *Smilaci affinis Salsaparilla J. B.* ii. 117. *Smilax Peruviana*, *Salsaparilla*, *Ger.* 850. *Smilax aspera Peruviana*, *Park.* 173. *Carcaparilla*, *Monard. Clus. Exot.* 316. *Smilax viticulis asperis Virginiana*, folio hederaceo leni, *Zarca nobilissima*, *Pluk. Phyt.* Tab. 3. f. 2. *Almaus* 348. *Ivapecanga Brasiliensibus*, *Sarcaparilla Hispanis Marcgr.* p. 10. *Salsaparilla offic. Dale* 167. *Sarsaparilla Ph. Lond. vet. & nov.* *Sarsaparilla*.—The roots are long and slender, about the thickness of a goose-quill, brown and wrinkled on the outside, white and somewhat mealy within, issuing from an inch-thick scaly head, in great numbers; of a farinaceous insipid taste, and no smell.

It grows in Peru, Brasil, &c.—Choose such roots as are pretty plump, not carious, nor too dusty on breaking, but rough, and which easily split longitudinally. These are sometimes some yards long. *Sarsaparilla* came to Spain first about the year 1536. “*Zarzaparilla a similitudine quam cum Smilace aspera habet nomen accepit, quæ Hispanis Zarzaparilla, qui rubus viticula dicitur. Zarfa siquidem Hispanis rubrum; parra autem vitem, & parilla viticulam significat. . . . Cujus usum primi Hispani ex Peru, & novi orbis sive Americæ provinciis ante 50 annos in Europam invexere,*” *B. P.* 296; that is about 1573: the pinax being first printed in 1623. “*Carcaparillæ usus huic urbi primum abhinc circiter 20 annis innotescere cœpit, ex Hispania nova huc translata est.*” *Monard. Clus. Exot.* p. 326. *Monardes Simpl. Hist.* was published in Spanish, in 1569. If this was the first time the *Sarsaparilla* was brought over, it was in 1549. “*N. Monardes floruit A. C. 1556, in Hispania.*” *Lind. renov.* twenty years sooner is 1536.



## S E C T. II.

It agrees with China in virtues, being antacid, diaphoretic, diuretic, and vulnerary; and is used the same way; they being commonly joined together in sweetening and sudorific decoctions.

“ Calfacit; moderate siccit; partium est tenuium, sudoriferaque. *Ufus præcip.* in lue venerea, quam specificè curat; in catarrhis, atque natis affectibus inde, e. g. arthritide, &c.” *Schroder*, p. 674.

1. It has little smell or taste; makes decoctions somewhat mucilaginous; and yields a mild rofine or balsam to sp. vini, and that in considerable quantity: yet boiling water can extract all its virtues. Hence such decoctions are diluent, antacid, and antiseptic. — 2. “ *Analyti chymica*, ex *Sarsæ-parillæ* *libivß extractæ fuerunt phlegmatis & spiritus libij, 3vij; olei crassioris aquæ fundum petentis 3vj; carbonis 3xxij, unde cinerum 3v, 3viiiß, & inde salis fixi salis 3x. gr. xxvj.*” *Geoff.* ii. 133. so that there were terræ 3iv. 5v. gr. x. & jactura fuit 3iv. *N. B.* As the style is singular, so are the principles obtained, viz. oleum, sal, & terra. — 3. It is commended in the French pox, gout, rheumatism, consumption, scurvy, scrophulæ, diseases of the skin; yea almost in every disease except fevers. Vide *Monard. l. c.* “ *Exhibetur a 3ß. ad 3ij. in substantia, ad 3ß. in decocto.*” *Geoff.* ii. p. 135.

There are several treatises on Sarsa in the *Authores varii de morbo Gallico*; as by *Cardanus*, *Claudinus*, *Massa*, *Philologus*, &c. “ *Certe nostratum Carcam parillam expertus sum simili facultate præditam cum illa, quæ ex Hispania nova adfertur.*” *Monard.*

“ *Sarsaparilla saporis est glutinosi, amaricantis, non ingrati tamen.*” *J. B.* “ *Saporis & odoris nullius evidentis.*” *Dale.* Saporis tantillum glutinosi, sub-  
“ *amaricantis, non ingrati tamen.*” *Geoff.* ii. 132,

## S C I L L A.

## S E C T. I.

*Scilla*, *Scylla*, *Squilla*, *off.* *Scilla vulgaris*, radice rubra, *B. P.* 73. *H. Ox.* ii. 395. *Scilla rufa*, magna, vulgaris, *J. B.* ii. 615. *R. H.* 1164. *Scilla rubra* sive *Pancratium verum*, *Park. par.* 133. *Pancratium*, *Dod.* 691. *Clus. H.* 171. *P. Clusii.* *Ger.* 172. *Ornithogalum maritimum* seu *Scilla*, radice rubra, *T.* 381. *Scilla vulgaris*, radice rubra. *Pancratium*, & *Scilla Dioscoridi.* *Scilla foemina Plinio*, *B. P.* 73. *Scilla radice tunicata*, *H. Cliff.* 123. *Scilla offic.* *Dale* 245. The Red Squill, or Sea Onion.—Cujus varietas est.

*Scilla radice alba*, *Scilla mascula Plinio*, foemina *Myrepso*, *B. P.* 73. *Scilla vulgaris radice alba*, *H. Ox.* ii. 395. *Scilla*, *Dod.* 690. *Scilla magna*, alba, *J. B.* ii. 618. *Scilla Hispanica vulgaris*, *Ger.* 171. *Scilla alba*, *Park. par.* 132. *Scilla radice alba*, *B. P. R. H.* 1164. *Ornithogalum maritimum*, seu *Scilla radice alba*, *T.* 381. The White Squill or Sea Onion.—The root of either is used, differing no more than the red and white onions do.

It

It is a large tunicated bulbous root, shaped somewhat like a pear, of a very acrid bitter and nauseous taste, and no smell.

Squills grow plentifully in sandy places, near the sea, in Spain, Portugal, Sicily, Normandy, *Lem. Diæt.* 492. *Sav. Diæt.* ii. 1512. "There were imported to Marfeilles com. annis (ante 1688.) between twenty and thirty quintals of squills, from Barbary and the Archipelago." *Sav. Diæt.* iii. 567. "Radix ex Hispania ad nos defertur." *Dale.* "Copiosè crescit in Apulia, Sicilia, Portugallia." *Schrod.* 679. "Copiosè nascitur supra Olyssipponem, & plerisque aliis Lusitanix & Hispanix locis. Floret Augusto & Septembri; semen Octobri & Novembri maturescit. Folia maturo jam semine, & exarido caule emergunt Novembri & Decembri." *R. H.* 1165. (vid. *Mill. Bot.* 401.) è *Clus. Hist.* p. 171. *N. B.* The flowers are very small.

It is not described by Dioscorides: but he mentions its tunica, l. 2. c. 202. p. 161; and cap. 203. says, "Pancratium, quod etiam aliqui scillam appellant, radice est magno bulbo simili, subrufa aut subpurpurea, amaro fervidoque gustu, foliis lili sed longioribus. Scillæ vires, & præparationem eandem habet, ac eodem quoque pondere ad eosdem affectus efficaciter exhibetur." vide & *Plin.* l. 27. c. 12. p. 679. "Scillæ autem caulis per se prius, tum flos ex eo emergens insidet, eademque florum proventus ternos ostendit; quorum primus tempus ferendi primum; secundus medium; tertius novissimum. . . . Sed cum ita senuerit, tum foliorum exortus, multis postea diebus incipit." *Theophr.* l. 7. c. 12. p. 865. Vide *Bodæum*, p. 873. "Sillarum in medicina alba est quæ masculus; fœmina nigra. Quæ candidissima fuerit, utilissima erit." *Plin.* l. 20. c. 9. p. 520; who next describes the Acetum Scillinum; which has always been much used, and is now improperly called Acetum Scilliticum: Scillatum would do better; for *Ausonius*, qui floruit circa an. 370, canit,

"Scillato decies si cor purgeris aceto,  
"Anticipesque tuum Samii Lucomonis acumen.

as cited by *Bodæus*. Was Pancratium the red, and Scilla the white Squill? This is probable.

## S E C T. II.

It is an acrid stimulating and detergent diuretic, cathartic, and emetic; called pectoral; and commended internally in coughs, asthma, jaundice, dropsy, obstructions in the viscera, &c. and externally for foul ulcers, kibes, warts, corns, &c.

"Calfacit, siccatur 2°, saporis est acris & amari; attenuat, incidit, abstergit, discutit, putredini resistit, diuretica est. *Uusus præcip.* in obstructionibus epatis, lienis, meatus biliaris, mensium, urinæ; in mucilagine pulmonum, tussi, &c. Extrinsecus in achoribus capitis (infusa in oleo), in pernione. *N. Veneficia* & incantationes arcere dicitur. *Præp.* 1. Præparata radix. Involvitur massa panis, atque in clibano coquitur: hinc eximitur, atque exsiccatur. 2. Syrupus, oxymel scilliticum simplex. 3. Oxymel compositum. 4. Loch de scylla, ex succo ac melle. 5. Acetum scylliticum ex infusione radices in aëre exsiccatur (diebus 40.) 6. Fæcula. 7. Extractum." *Schrod.* 679.



1. It is very hot, biting, excessively bitter and nauseous, alcalescent and subviscid. "Vim habet acrem & urentem." *Dioscorid.* "Folia (*scil.* rubræ) cum multa visciditate amara sunt. Radix amara est & acris, *J. B.* Scillæ "albæ radix, multis tunicis albis, lento quodam humore plenis prædita." (*è Clus.*) *R. H.* "Saporis est valde acris, amari, & mucilaginosi." *Nucl. Belg.* ii. 63. — 2. Its acrimony is, for the greatest part, volatile, flying off in drying, decocting, or roasting; though its nauseous bitterness and detergency long remain. — 3. Externally it heats, inflames, ulcerates: and in too great quantity internally causes pains, cardialgias, vomitings, &c. but diluted, prepared, and rightly dosed, it attenuates powerfully, expectorates, provokes urine, and opens the belly; so that it is of great use in coughs, phlegmatic stuffings of the lungs, asthmas, &c." "It gives over nothing of its virtues in distillation, either with water or spirit." *New Disp.* p. 203. Vide *Cartheus*, p. 439. Vol. I.

## S E C T. III.

Squills are not used *per se* in substance, though perhaps well covered they might be given so to ℥j. The infusion of the fresh roots in wine or vinegar may be given to ʒj; and that of the roots well dried to ʒij. — The officinal preparations are the trochisci scillitici pro theriaca (an useless preparation), acetum, oxymel, & syrupus; and it gives name to a mass of pills.

The old way of preparing Squills by baking them thoroughly in an oven, or by boiling them in several waters, "tantisper dum in ipsa aqua, neque amaritudo neque acrimonia percipiatur ulla," as *Dioscorides* has it, certainly weakened them too much, or rather enervated them altogether: yet of these dried the vinum, acetum, &c. scillina were prepared, as well as ob. iii. given with honey. We have the following preparations in the *Pb. Lond. edit.* 1745: "*Scillæ coctio.* Scillam cortice exteriori detracto, parteque duriori, cui radiculæ adhærent, abjecta, farina tritici subacta involve, & in clibano coque, donec farina probe siccata sit, & Scilla undique fiat tenera." (This is ordered for the trochisci e Scilla in the theriaca.) "*Scillæ exsiccatio.* Scillam, ablato externo cortice, transversim in taleolas tenues seca, & lenissimo colore exsicca."

"Acetum Scilliticum *offic.* R Rad. Scillæ in taleolas sectarum, ℥bj, aceti optimi ℥vj, insolentur in vase bene obturato dies 40, & F. colatura cum expressione." *Pb. Edens. noviss.* (In the edition 1722 the Scillæ were ordered to be modice exsiccatae.) A warm digestion would do as well in a much shorter time. It should be suffered to subside or filtered. "The preparation here directed, says *Lewis*, is not near so strong as that in the last Dispensatory (he should have said last *save one*); fresh squills being now used in the same quantity that dry ones were ordered formerly." p. 126. But he does not consider the effect of exsiccation; which makes this preparation rather stronger. In aceti hujus ʒj is the infusion Scillæ ℥iv. Of it are made (by coction) the syrupus, which is given to ʒij; and oxymel Scillit. which is given to ʒiij or iv, as an emetic.

The acetum Scillinum is extravagantly commended in a book attributed to *Galen*, viz. *De medicamentis faciliè parandis*, lib. 3. (or *De medicamentis quæ ad manum*

manum sunt, Galeno adscriptus liber ordine & judicio vacuus) cap. 205. p. 177. B. The title is *Aceti Scillini confectio ex Galeno*. “Remedium optimum ex Scillâ a Pythagora scribitur, quo omnes imperatores usi sunt. Ab ipsius auctore fertur, quicunque hoc utantur longæ vitæ fore, & ejus extrema integra usque ad finem permanitura. Et ipse quidem Samius senex hujusmodi extitit: quantum enim temporis vixit, haud ignoras; de ipso enim in libro traditum est, quod cum consanguineis suis hanc facultatem communicavit, cumque hoc medicamento uti incepit, 50 annum natus erat, & usque centesimum septimum vitam produxit integer, & nulla unquam adversa valetudine tentatus. Hæc sane medicamenti author differuit, qui vir philosophus erat mentiri nescius. Nos autem viri hujus fidei periculum fecimus, ac firmam constantemque hujusce medicamenti facultatem esse testamur. Oportet igitur Scillam montanam hujus pondere capientem dura circumcidere, & mollia minutatim concidere: & aceti acerrimi sextarios viij. in vitreum vas mittere, atque obturare, ac per 30 dies in caniculæ caloribus, ut maceatur, sinere; deinde Scillam extractam exprime. Id genus aceti parum mane sorbeto: tibi enim hæc evenient, ut ne faucium orisque partes unquam remollescant: os ventriculi bene valebit, facile spiritum duces, vox recte habebit, oculi acutissime cernent, aures in officio manebunt, nullusque flatuosus vapor in ventre unquam excitabitur: nullum viscus suspensum erit: bene spirans, bene coloratus deges, ad civilia negotia recte affectus: non acidum, non falsum ructabis, si aliquid aceti hujus assumpseris. Et jejunus ut assumes præcipio, septemque stadias deambules, ita enim dissolvetur. Hoc aceto qui utitur in victu quamvis licentiosus esto: omnia enim cibaria conficiet, & a nullo unquam offensam patietur; neque valde implebitur, & ejus quod utiliter sumitur, nihil supervacui in corpore residebit, non flatus, non bilis, non stercus, non urina, sed omnia facile excernit, atque educit: alvus lubrica omnino est, totiusque corporis purgatorium est medicamentum, etiamsi in ossibus sordes inhæreant. Item phthisicos ab omnibus deploratos, hoc medicamento sanitati restitutos novimus. Morbo comitiali diuturno efficaciter profuit, ut nisi post longa temporis intervalla non redierit; incipientem vero ac novum perfecte discutit, neque reverti amplius hunc affectum permittit. Ad podagras præterea & articulorum morbos, jecoris, lienisque duritias vehementer facit. Et singulares quidem aceti Scillini affectus hi sunt; communes autem quamplurimi, quibus nos commoti, salutare hoc medicamentum, sanitatis integritatisque causa, tibi tradimus.” Thus the *spurious* Galen.

## S C O R Z O N E R A.

## S E C T. I.

Scorzonera, *offic.* Scorzonera latifolia sinuata, B. P. ii. 75. T. 476. H. Ox. iii. 81. Scorzonera, *Dod.* 257. Scorzonera Hispanica major. *Park. par.* 301. *R. H.* 248. Scorzonera major Hispanica, f. *Clus. H.* ii. 137. Tragopogon Hispanicus, sive Escorzonera, aut Scorzonera, *J. B.* ii. 1060. Viperaria, sive Scorzonera Hispanica, *Ger.* 736. Scorzonera, caule ramoso; foliis amplexicaulibus



caulibus, undulatis, *H. Cliff.* Common Vipers-grass or Scorzonera.—This has a thick and long lactescent root, of a black colour on the outside, white within, of an agreeable sweetish taste, and no smell.

It grows spontaneously in Spain. In gardens it flowers in June, and thro' the summer, if not broken by the winds. Whether it was known to the ancients is uncertain: but the first account of it that I have met with is that of *Petrus Canizerus* (*Cæsareus medicus*), sent from Spain to *Odoricus Melchiorius*, physician to the queen of Bohemia, and by him communicated in a letter to *Matthiolum*; which you have in *Matthiol. Epist.* l. 5. In 1574. *Nic. Monardes* published a book on the Bezaar and Scorzonera, in Spanish; which *Carolus Cusius* turned into Latin. It is annexed to his *Exoticorum* lib. x. *Lugd. Bat.* 1605, in folio. Here, *Monardes* says, the Scorzonera was only known about thirty years before he wrote; which therefore falls (in with, or) about the year 1544. That it was discovered in a place called Momblanc in Catalonia, a country then much infested by a kind of serpent called Escuerco or Escorcu, which the root much resembles in figure, size, and colour, and for the bite of which serpent it was found to be the only effectual remedy; and hence it got the name Scorzonera. *Monardes* in this little treatise (which consists of four pages) gives a much fuller account of its discovery and use than *Cannizerus* or *Matthiolum*. The title of the book in *Clusius* is, “*De lapide Bezaar & Scorzonera herba, duobus præstantissimis adversus venena remediis. Auctore Nicolao Monardo Hispalensi medico, interprete Carolo Clusio Atrebate.*” There is also a book by *Johannes Michael Febr.* called *Anchora sacra, vel Scorzonera, Pratiſlavie*, 1666, in 8vo. *Lind. ren.* in 1664. *Sequier. B. B. Jenæ*, 1668, 8vo, p. 167. *Lin. B. B.* I have not seen it. *Clavens, Lister, and Wedelius*, have also written of it. *Sequier. B. B.* p. 444.

## S E C T. II.

Scorzonera is an oleraceous, resolvent, nephritic, hepatic, vulnerary, antacid, nourishing, and somewhat diuretic root; called alexipharmic; and commended in malignant diseases, fevers with eruption, epilepsy, poisons, bites of serpents, and what not? *Optime nutrit.*

“Calfacit, humectat 1, alexipharmaca est. Usus præcip. in moribus serpentum, peste, melancholia, epilepsia, vertigine, &c. Quin commendatur maximopere ad uteri suffocationem. *Præp.* 1. Aqua è radice. 2. Extractum. 3. Condita radix.” *Schrod.* p. 678. “Sapore non ingrato, sed subdulci, unde & cruda, & cocta, & condita, non secus ac pastinaca nostra, editur contra morsum, non solum serpentis Escurzos dicti, sed & quorumlibet aliorum, contra febres pestilentes, contra quoscunque cordis affectus, melancholiam, palpitationem, syncopen, epilepsiam, vertiginem, contra viscerum obstructions, uteri mala, quid dico autem? omnia. Ita enim nova remedia celebrari solent.” *Hoffman.* p. 181.

1. It is of an agreeable sweetish taste, subviscid, and a little rough: I have eaten of it plentifully when a child; and known it served up at the table fried, as a delicate as well as wholesome dish. “Radix candida intus est, pingui quodam, & digitis adhærente præ lentore, succo, gustu subdulci, qualis fere  
“ in

“ in pontica nuce.” *Cannizerus*, l. c. “ Pedali longitudine est radix, crassitudine pollicari & majore, nigricante exterius cortice obduta, lacte dulcissimo, non sine aliqua adstrictione prægnans, in multos annos vivax.” *J. B.* “ Radix esculenta est, & apud nos in frequenti usu in cibis; imo pastinacæ & ipsius etiam sisari radicibus antefertur.” *R. H.* — 2. In character it comes near the dens leonis, lactuca, &c. (lactescencia frigida.) An ounce of the recent dried root yielded extracti aquosi almost ʒv, when the same quantity with spirit only afforded extracti ʒij. ʒij. according to *Carteuser*, Vol. II. p. 594. It appears to be nourishing, antacid, subastringent, and diuretic; so is not useless in variolis, morbillis, &c. Vide *Fuller's Decoctum Variolosum*. Yet—3. I own it is too much commended in many diseases; though it is safe in them all. *Monardes* says, “ Si Escorzu illius herbæ succo aspergatur torpescit, & si in os ejus injiciatur interit;” and adds, “ Quicumque ab hoc animali præmorsus radicem edit, aut herbæ succum sumit, illico sanatur, & tamen si locus intumescat, vel inflammetur, tumor vel inflammatio statim tollitur, doloresque & symptomata cessant: si quis vero statim a morsu sumat, symptomata non succedunt, nec præmorsa pars inflammatur;” and that some, for their diversion, having first eaten of the root, will suffer the serpent to bite them, without getting any harm. “ Sed, sola denticulorum cuti impressorum vestigia appareant.” Nevertheless his “ morsus curæ ratio” does little honour to Scorzonera. For, besides the use of it, all must be done that is recommended in the cure of poisons: ligatures, astringent plaisters, scarifications, cupping, cauteries, suppuratives, a right regimen of the non-naturals, purging, bleeding, alexipharmics, &c. are not to be neglected. And during the cure the Scorzonera radice conservæ is to be taken every morning, and the juice applied to the wound, by itself, or mixed with the theriaca or mithridatium. But he farther says, “ Si vero lapis bezaar in promptu sit, ejus pulvis, vulnere inspersus, admirabilis erit efficaciarum:” and makes the unicorn, ebur, os e corde cervi, lapides pretiosi, powerful alexipharmics. He does not inform us in what quantity the Scorzonera is to be taken. But this is of little moment; for you may give it any manner of way, not by drams or ounces, but even by pounds, with all imaginable safety.—I would not have you trust the cure of any poison or malignant disease to this root alone.

## S C R O P H U L A R I A.

## S E C T. I.

1. Scrophularia, *Ficaria offic.* Scrophularia nodosa, foetida, *B. P.* 235. *T.* 166. *H. Ox.* ii. 482. Scrophularia, *Dod.* 50. Scrophularia vulgaris & major, *J. B.* iii. 421. Scrophularia major, *Ger.* 716. *R. H.* 764. *Syn.* 283. Scrophularia major vulgaris, *Park.* 609. Scrophularia foliis cordatis, oppositis, racemo terminatrici, *H. Cliff.* 322. Common Figwort.—This has a large tuberous knobby root, and very juicy; of a white or greenish colour; bitterish disagreeable taste; and fetid elder-smell, while recent; though when dried it becomes black, wrinkled, and shriveled into almost nothing.

It



It grows plentifully in woods, thickets, meadows, by water-sides, flowering in June and July. It seems to have been unknown to the ancients. "Scrophularia, & a radice nodosa, & ab effectu, quod ad scrophulas prodesse credatur, nomen accepit." *B. P.* Scrophulæ, à scrofa (or scropha, as *Scriverius Largus* writes it) an old sow, very subject to this disease. "Scrofularia Junio dicta est, quod ejus esu scrofæ delectantur." *Camb. Diet.*

2. *Scrophularia aquatica major. Betonica aquatica offic.* *Scrophularia aquatica major, B. P.* 235. *T.* 166. *R. H.* 764. *Syn.* 283. *Scrophularia maxima, radice fibrosa, J. B.* ii. 421. *Scrophularia radice fibrosa, H. Ox.* ii. 482. *Betonica aquatilis, Dod.* 50. *Betonica aquatica major, Park.* 613. Water Betony *vulgò, rectius* Water Figwort. — The leaves or herb only are used. It grows by the water sides chiefly, and flowers in June and July. *N. B.* It is the Clymenon; as the former is the Clymenum Mas. *Gesn. Hort.* according to *B. P.*

## S E C T. II.

Figwort root and leaves are abstergent, alcalescent, emollient, diuretic, detergent, anodyne, spasmodic; and commended for the scrophulæ, mariscæ ani, and other malignant tumors, and spreading ulcers, diseases of the skin, &c. both internally and externally used.

Water-Betony leaves are milder than the Figwort, being alcalescent, attenuant, diuretic, anodyne, and bitterish; called vulnerary; and commended for wounds, ulcers, itch, &c. but used chiefly as a corrector of Senna.

"Radix nodosa. Calfacit & siccatur, digerit, incidit, saporis amari. *Ufus præcip.* in strumis seu scrophulis, ficis & mariscis ani, in cancribus, & similibus serpentinis ulceribus, malignaque scabie. Extrinsicus in tumoribus renitentibus, malignisque molliendis, e. g. scrophulis & similibus. *Præp.* aqua stillat. ex herba cum radice." *Schroder,* p. 679.

"*Betonica aquatica offic. Ufu.* Herba. *Vires.* Cum priore (*Scrophularia, offic.*) viribus convenit. Magni usus est in corrigenda senna." *Dale,* p. 195. "Facultate calida et sicca est: folia absterforia vi prædita, ad prava & foetida ulcera plurimum prodesse feruntur: & cum melle succus horum decoctus. Curant autem ulcera & contusa, si mane et sero continuis diebus in foco calefacta, & contrita folia imponantur." *J. B.* iii. 422.

Figwort (root and herb) is, 1. very bitter and nauseous; and more fetid than elder itself. It yields a considerable quantity of volatile salt and oil by a chemical analysis: hence it appears to be saponaceous. The Water Betony is not fetid, but little bitterish, and has an agreeable flavour." "Figwort leaves are very bitter, very fetid, even more than those of Elder, and redden very little the blue paper; the root reddens it more. By a chymical analysis (from the *Register de l'Acad.*) Figwort yields much volatile salt, and much oil: no wonder then it be resolute, emollient, and anodyne." *T. Hist.* p. 144. "Water Betony is fetid, a little bitter, deterfive, and does not redden almost at all the blue paper. . . It is deterfive and vulnerary; and has the same virtues with the Figwort." *T. Hist.* p. 300. — 2. An infusion of Figwort leaves in boiling water, after macerating a day, is bitter and unpleasant to the taste, and of a greenish smell. It turns a solution of vitriol brown-

ish and semi-opaque. Whereas such an infusion of Water Betony is only a little bitterish, with the flavour and scent almost of the nuclei cerasorum, and pretty agreeable; and turns a solutio vitrioli to a dark semi-opaque green; but does not cause any precipitation, though the former does so a little. Both only diluted syrup of violets, and reddened a little the solutio heliotropii; though neither reddened the blue paper in the least. — 3. Figwort is much commended in scrophulous cases, both inwardly taken and outwardly applied. Also for the hæmorrhoids, &c. “ Si quis hæmorrhoidum cæcarum infanso dolore torquentur, minimum quid Scrophulariæ, vel radiceis, vel foliorum, cum cibo aut potu capiendò, statim dolore liberatur: sive ipsam plantæ substantiam siccam, aut viridem, sive decoctum ejus assumat Henric. ab Heerf. in Observ. qui se hoc sæpius expertum ait.” R. H. Probably, if taken in a sufficient quantity, it would purge.

The use of Water-Betony as a corrector of Senna commenced, in Europe at least, with this century. For in 1700 a French surgeon, returning from Brasil to Portugal, brought along with him an American simple, which was a sure specific for the pleurisy, a remedy for the apoplexy, and all sorts of intermitting fevers; as he wrote to a friend of his at *Paris*. He added also that “ the leaves of this plant, which he called Yquetaya, put into infusion of senna, takes off intirely its disagreeable taste and smell, without diminishing its virtue, or communicating to it any bad quality.” But, unluckily for him, he sent along with his letter a specimen of his specific. The experiment was made with senna, and, it answering, great expectations were raised of its other virtues; and curiosity quickened the endeavours of the learned to find out what plant this was. But this was not easily done, he had so cut and hashed it. At length, however the sagacious *Mr. Homberg* found some seeds among it, which he sowed, and up sprung a *Scrophularia*, little if at all different from this Water Betony, which on trial was found to have the same effect on Senna with the Yquetaya. This saved the surgeon the trouble of bringing any more of it from Brasil. Vide *Mr. Marchant*, in the *Mem. Acad. R.* 1701. p. 275. of whose philosophy take the following sample:

“ The best way to dry it is, after ten or twelve days keeping in the shade, it is to be exposed to the sun till intirely dry. Thus the saline and sulphurous parts are detained with the phlegm, by the collapsing of the parts through default of circulation, and condense together; after which the sun only exhales the more aqueous parts. . . . By a chymical analysis this plant, besides phlegm, yields much volatile salt concentered, and much oil:” (here he seems to suppose it will yield the same principles with the Figwort) “ no wonder therefore that it is so resolute and emollient, since full of active principles; neither that it has such effect on Senna, since full of volatile salt, which, being actuated by infusion (s’échappe avec precipitation) flies off precipitately, and carries along with it the taste and smell of the Senna; while its sulphur, or oily part, retains the purgative quality of the medicine.” Thus *Mr. Marchant*. It is called sometimes *Liquidaja* & *Liquitaja*. Vide *Seg. B. B.* p. 110; where, among *Mich. Fred. Locknerus*’s works, are *De Liquidaja Americana* & *Scrophulariæ usu interno traumatico*; and also *De Scrophulariæ aquaticæ majoris virtute traumatica vera; ubi obiter de Liquidaja Brasiliana*, *M. A. N. C.* cent. 7 & 8. Obs. 65.



## S E C T. III.

Figwort root may be given in substance; though most commonly its juice, infusion, decoction, are used. It does not dry well; or seems, in my opinion, soon to spoil: some make ʒj. of the dried root in powder a dose. There are several ointments and plaisters for the scrophulæ, &c. recommended by various authors, in which it is an ingredient.

To correct Sennæ some take for Sennæ p. vj, Betonicæ aquaticæ p. iij; others p. iv. (vide *Pharm. Edinb.* p. 69.) some p. vj, or more. *Boerhaave* orders for Sennæ ʒij, Scrophul. aquat. ʒvj.

You have *Sir R. Sibbald's Empl. ad Scrophulas* in his *Prod. Hist. Nat. Scotiæ*, and in *R. H.* 765. and two ointments in *T. Hist.* p. 145. "Scrophulariæ radicis ficcatae pulvis ʒj. pondere potus lumbricos ventris pellit." *H.* 765: where *Tragus's* ointment is also thus described: "℞ Tamarind. ʒij, Agarici trochisc. ʒij, Fol. Sennæ ʒj, Fol. Scrophul. aquaticæ (maj.) ʒvj. cum aq. decoct. spat. ½ horæ; deinde per pannum express. ʒxij. admisce fyr. cichor. cum rheo ʒij. Capiat ʒij omni semihorâ donec purgari incipiat." *Boerb. Lib. de M. M.* p. 123. "And ointments prepared from these (says *T. Hist. l. c.*) are excellent for the gout, for hæmorrhoids, tetters; but, during the use of them, there must also be taken in the morning fasting pulv. radicis Scrophulariæ ʒj mixed with some convenient conserve, or a glass of wine in which the root has been infused for a night."

## L E C T U R E XLV.

## S E R P E N T A R I A.

## S E C T. I.

*Serpentaria Virginiana offic.* *Serpentaria Virginiana*, *Contrayerva Virginiana Viperina*, *Mont. Exot.* 7. *Dale* 194. *Serpentaria Virginiana*, *Colubrina Virginiana*, & *Pistolachia Virginiana*. *Geoff.* ii. 141. *Virginian Snake-root*, or *Snake-weed*—The root of this herb consists of a number of slender long fibres issuing from a small knotty head, of a greyish colour on the outside, yellowish within, and of a hot aromatic and very bitter taste, and turpentine smell, perfumed a little as it were with lavender.

"Tres radices sub hoc nomine in officinis nostris veneunt, ut nos monuit eruditissimus ille Botanicus *Leonardus Plukenetius*, *M. D.* in literis ad me datis, viz. 1. *Aristolochia polyrhizos*, auriculatis foliis *Virginiana*. *Pluk. Phyt.* t. 78. *Almag.* 50. *T.* 162. *H. Ox.* iii. 510. *R. H.* iii. 393. — 2. *Aristolochia*, violæ fruticosæ foliis, *Virginiana*; cujus radix *Serpentaria* dicitur, *Pluk. Phyt.* t. 15. *Almag.* 50. *H. Ox.* iii. 510. *R. H.* iii. 394. — 3. *Aristolochia*, *Pistolochia*, seu *Serpentaria Virginiana*, caule nodoso, *Banister Cat. M. S. R. H.* iii. 394. *T.* 162. *A. Polyrhizos Virginiana*; fructu parvo pentangulari, *H. Ox.* iii. 310. *Pistolochia* (*Cretica* sive) *Virginiana*. *Ger.* 848.

“(ubi confundit cum *Pistolochia Cretica Clusii*.) *A. Polyrrhizos Virginiana*, “*Park.* 420.” (It is not *Arist.* *Polyrrhizos*, but *only* *Polyrrhizos Virginiana* in *Park.*) “*Radix Snagrol nothæ Creticus* (errore typ. for *Radix Snagroel nothæ Angliæ*) *Cornut.* 214. *Virginian Snakeweed*. In *Virginia*. *Ufu.* *Radices* “*fibrosæ, tenues, foris fuscæ, intus flavescences, saporis & odoris resinosi.*” *Dale*, p. 194. “*Aristolochia caulibus infirmis angulosis flexuosis, foliis cordato-oblongis planis, floribus recurvis solitariis*, *Gron. Virg.* 112. *Lin. M. M.* “147. *A. foliis cordato-oblongis planis, caulibus infirmis flexuosis teretibus, floribus solitariis.*” *Lin. Sp. pl.* p. 961. “The *Pistolochia*, or *Serpentaria Virginiana*: which has a bushy root consisting of a number of small strings, of a yellowish colour, and a hot aromatic scent and taste.” From *Phil. Trans.* N<sup>o</sup>. 246, for *Dec.* 1698. *Mill. Bot.* p. 410. “*Radices filamentosæ, fusco-gryscæ, adhærentes superne parti crassiori; odoris sunt aromatici, satis fortis, & saporis valde amari, aromatici.*” *Nucl. Belg.* p. 272. “*Radix est fibrosa, tenuis, levis, foris fusca, intus flavescens, odore fragrante aromatico, ad Zedoariæ odorem aliquantisper accedente, sapore subacri, amaricante.* Ex *Virginia* affertur.” *Geoff.* ii. 141; who transcribes the descriptions of the three species mentioned by *Dale*, from *R. H.* — But the dried specimen I have of the whole plant, brought directly from America by *Mr. Richard Lightbody, surgeon*, agrees with none of them; the leaves no way resembling a heart at the footstalk, being there all roundish, or obtusely pointed.

It grows in *Virginia*, flowering, they say, in *May*, and ripening the seed in *August*. The first author who mentions this root, that I know of, is *Thomas Johnson*, an *apothecary of London*, and famous *botanist* in his time, as appears by his edition of *Gerard's Herbal* in 1633. “To *Clusius Pistolachia Cretica*, says he, I thought good to add the epithet *Virginia* also, for that the much admired *Snakeweed* of *Virginia* seems no other way to differ from it than an inhabitant of *Candy* from one of the *Virginians*.” . . (Then he describes and adds) “Thus *Clusius* describes his, to which that *Snakeweed* that was brought from *Virginia*, and grew with *Mr. John Tradescant*, at *South-Lambeth*, an. 1632, was agreeable in all points, but here and there one of the lower leaves were somewhat broader and rounder-pointed than the rest; the flower long, red, crooked, and a little hairy, and did not open the top, &c. Vide *Ger.* 848. In 1635 came out *Jacobi Cornuti, D. M. Parisiensis, Canadensium plantarum, aliarumque nondum editarum Historia; Paris: in 4to.* the appendix to which concludes with the following article, *viz.*

“*Radix Snagroel Nothæ Angliæ.* Missa quoque est ad me ex nothâ Angliâ radix quam *Serpentariæ* vocant, vernacule *Snagroel* cum hac inscriptione. Hæc radix alexiterium præsentissimum est, contra morsum serpentis ingentis, perniciosissimique in notha Anglia, cujus morsus intra duodecim horas interficit, nisi hujus radice sumatur portio, qua sumpta nullus unquam auditus est periclitari de vita.” *Corn.* p. 214. This is all he has of it: and it is plain he has read *Snagroot*, *Snagroel*, and *notha* for *nova*: yet his name is often cited, though seldom right, *ex gr.* “There is a cornuted *Cornutus*, that, among his *American* plants, calleth this (a horned plague on his head for his labour) *Snagroel*, or *Snagroel Nothæ Angliæ*; the envy was base whereby he wrote so, yet would colour it, in that he could not write true, but false *English* and *Latin* too; it were not amiss therefore



“that he were whipt at the school for it.” *Park.* 421; who thus mistakes himself, and writes Snagroel for Snayroel. In *Dale’s Pharm. edit.* 2. it is, “Radix Snayroel Nothæ Angliæ, *Corn.*” p. 289. In *edit.* 3. it is Snagrol, as is observed above. In *Lemery’s Dictionary*, p. 573, and in *Chomel*, one of the names of Serpentaria is Senagrue: and, to add no more, it is Radix Snagroel Novæ Angliæ, Cornuti; *Geoff.* ii. 141.

## S E C T. II.

It is an acrid antacid stimulating diaphoretic and diuretic; called alexipharmic; and commended in agues, malignant fevers, bites of serpents and mad dogs, female obstructions, hysteric fits, worms, &c. “Cum aristolochia ali-  
“ quatenus convenire videtur.”

“Alexipharmaca sunt. Morsum canis rabidi sanant, & ab hydrophobia  
“ defendunt: certissimo & præsentaneo remedio sunt adversus lethiferos mor-  
“ sus serpentis Boicininga.” *Dale*, p. 194. Sunt alexipharmacæ, hydroticæ,  
“ stomachicæ, anthelminticæ; menses & urinas movent: valent ad febres ma-  
“ lignas & intermittentes. Dosis ad ʒß est.” *Nucl. Belg.* 272. “Venenis &  
“ humorum putredini resistit. . . Vermes necat, verminosamque putredinem  
“ arcet. Præterea vis febrifuga & antihystérica ipsi tribuitur.” *Geoff.* ii. 144.

1. It is very bitter, hot, disagreeably aromatic, resinous, and strongly odoriferous. I cannot discover sweetness nor astringency in it. “Odore est resi-  
“ noso forti & aromatico, non tamen grato; gustu acri, subastringente, & ali-  
“ quantulum dulci.” *H. Ox.* — 2. Its being a cure for the bite of the rattlesnake wants confirmation; yet on this is founded its alexipharmic virtues. However it is certainly a disagreeable bitter, and more diaphoretic than stomachic. Some recommend a Snakeroot dram to help digestion; but it had the contrary effect on me when I once tried it. “Some, by the similitude the root  
“ had with asarum, and a vomiting quality which they attributed to it (which  
“ certainly is no other than accidental) would forthwith pronounce it an asarum.” *Ger.* l. c. I do not doubt but a strong infusion of it would vomit, as well as that of card. benedictus, or such like disagreeable bitters.

“Per retortam distillata spiritum acidum fundit copiosum, & oleum tum  
“ tenue, tum crassum, mediocri capite mortuo remanente, sale alcali fixo tur-  
“ gido. Ex hac radice extractum salino-resinosum elicetur, tum ope aquæ,  
“ tum ope spiritus vini, non vero mera resina: unde liquet ejus energiam a  
“ sale acido, oleosis particulis, & sale alcali fixo simul conjunctis pendere.”  
*Geoff.* ii. 143. Is it an imaginary analysis? Is its essential salt a fixed alcali?

## S E C T. III.

It is given in substance to ʒß, in infusion to ʒj: the Tinctura Serpentariæ composita to ʒj; Decoctum Serpentariæ ad ʒx. An ounce of the Tinctura, or rather Vinum Serpentariæ, containing the Infusio Serpentariæ ʒij. & Theriacæ ʒj. The root is an ingredient in the Aqua epidemia, Tinctura corticis Peruviani, Tinct. Rhei amara, Tinct. sudorifica, Pulvis Contrayervæ compositus, Theriaca Edinensis, Pulvis Hieræpicæ, & Tinctura Sacra.

“Præ-

“Præscribitur ejus pulvis a gr. x ad ʒß; infusum ad ʒij.” *Geoff.* ii. 144. Tinct. Serpentarizæ *Ph. Lond.* is drawn sp. vini tenuiori. How they were said to have used it in America for the bite of the rattle-snake, and its effects on the serpent itself, see in *Parkinson*.

## S P I C A.

## S E C T. I.

1. Spica, Spica Indica, Spica Nardi, Nardus, Nardus Indica *offic.* Nardus Indica, quæ Spica, Spica Nardi, & Spica Indica *officinis*, *B. P.* 13. Nardus Indica, quæ Spica *officinarum* *B. Theat.* 194. Nardus Indica, quæ *officinarum* Spica, *C. B. H. Ox.* iii. 256. Nardus Indica vulgaris, *J. B.* iii. 2, 202. Nardus, *Garc. Clus. Exot.* 201. Nardus Indica, *Ger.* 1080. *R. H.* 1910. Nardus Indica, sive Spica Nardi, *Park.* 1595. Gramen cyperoides, aromaticum Indicum, *Brœyn. prod.* ii. 53. Indian Spikenard.—This is the hairy head of a small root, about two or three inches long, of a reddish brown colour, a hot bitterish aromatic and subastringent taste, and agreeable smell like that of the Cyperus.

“Spikenard is the head of a root, consisting of spikes of a reddish brown or iron-colour, from an inch and half to two or three inches long, about a finger thick, made up of fine slender fibres matted close together, having small string-roots at the bottom about as thick as a packthread. The whole spike has a strong aromatic smell, and a warm bitterish taste.” *Mill. Bot.* 308.

“Radix longa, fungosa, digiti crassitie & longitudine, comosa, ex marcidorum foliorum nervis, aut nervosis filamentis convoluta & congesta, colore ex fusco rufescente, saporis amari, acris, aromatici, odoris grati. Ex India Orientali, Alexandria, & aliunde ad nos transportatur. Eligenda recens, levis, longam comam habens, aliquantulum redolens cyperum, sapore amaro.” *Dale* 257.

It is called a root, though composed of the nervous filaments of the decayed leaves; little or nothing of the root commonly adhering to it. It is said to grow on the river *Ganges* plentifully; also in *Java*. “Hæc radix non est, ut vulgus sibi persuadet, quia radiculae subtus sunt, quasi ἐν πύθμει Græcis dicto in bulbaceis. Nec refert si Galenus pro radice agnovit. Secutus enim est judicium vulgi. Revera radices ipsæ adhærentes inutiles sunt.” *Hoffman*, p. 371.

2. Spica Celtica, Nardus Celtica *offic.* Nardus Celtica *Dioscoridis*, *B. P.* 165. Nardus Celtica, *J. B.* iii. 2, 205. *Ger.* 1079. *R. H.* 391. Nardus Celtica seu Alpina, *Clus. H.* ii. 57. Nardus sive Spica Celtica, *Park.* 116. Valeriana, Nardus Celtica dicta *Dioscoridis*, *H. Ox.* iii. 103. Valeriana Celtica, *T.* 131. Celtic Spikenard;—which is a small jointed brown root, with some slender fibres, and a number of little scale-like leaves adhering, of a greenish or yellowish-green colour, warm aromatic bitter taste, and strong valerian smell.

“Radices fibrosæ sunt, capillares, nigricantes, cum foliis parvis ex viridi flavescens, saporis acris, amaricantis, aromatici, odoris fragrantis graviusculi.” *Dale* 110. “Radix est fibrosa, capillaris, rufescens, cum foliis, seu squamis



“ parvis, ex viridi flavescentibus, sapore acri, amaricante, aromatico, odore fragrante graviusculo.” *Geoff.* ii. 109.

They grow in the Alps, &c. flowering in August. *Garcias, J. B. Ray, &c.* believe them to be the *Nardus Indica* & *Celtica Antiquorum*. Vide *Dioscorid.* l. 1. c. 6. p. 8. It is ὁ vel ἡ νάρδος, & τὸν νάρδον. “ Forte a Naardo, urbe Syriaca, Euphrati contermina.” *B. P.* “ Nec magis a Naarda, urbe Euphrati inædificata apud Stephanum, nomen, habet, quam a Nar Italiæ fluvio.” *Hoffman.* p. 371. Dicitur & νάρδος σπράχυν, & νάρδος σπράχυν.

*Dioscoridis* l. 1. c. 6. is de Nardo, viz. *Indica* & *Syriaca*, with their varieties; *cap.* 7. De Nardo *Celtica*; *cap.* 8. De Nardo montana; *cap.* 9. De Asaro, called by some Nardum Sylvestre; *cap.* 10. De Phu; also by some called Sylvestre Nardum; *cap.* 11. De Malabathro, quod nonnulli Nardi Indici folium esse arbitrantur. Vide p. 8 ad p. 11.

## S E C T. II.

The Indian Spikenard agrees in virtues with the *Cyperus*; as does the Celtic with the wild Valerian, though the same virtues are commonly given to them both.

“ Spica Indica calfacit 1, siccatur 2, attenuat, astringit, nephritica & stomachica est. *Ufus præcip.* in urina & mensibus ciendis, in ventriculi rosione, inflatione, in ictero, &c. Extrinsecus in lixivis cephalicis, balneis uterinis, &c. *Præpar.* 1. Oleum Nardinum simplex. 2. Oleum Nardinum compositum.” *Schroder.* 687. “ Spica Celtica calfacit & siccatur, viriumque earundem est cum Spica Indica, sed imbecilliorum; majore tamen cum utilitate adhibetur in urina cienda, ventriculo corroborando, flatibus discutiendis. Extrinsecus additur malagmatis, unguentisque calefacientibus.” *Schrod.* 686.

But

As the Indian agrees much in taste and smell with the Celtic, and probably is a species of the same genus: and the Celtic is certainly a Valerian; and, so far as taste or smell can discover, differs very little from the *Valeriana Sylvestris*: we may conclude that the first is astringent and binding, the other rather laxative and cathartic; the first more stomachic and carminative, the last more nervine and diaphoretic.

“ Ex sapore & odore conjicere licet Nardi Indicæ vires a sale volatili oleoso pendere, multo sale fixo & terra implicito. Alexiteria est, cephalica, stomachica, & nephritica: unde morbis malignis convenit. Catarrhos, seu humores e capite in pectus, stomachumve procumbentes cohibet, ventriculum debilem roborat, & ciborum concoctionem juvat, intus sumpta, & exterius admota, omnesque frigidos affectus concoquit, menses & urinas promovet, ad hepatitis & lienis, & mesenterii obstructions resolvendas confert. *Galenus* *Marcum* Imperatorem ventriculi imbecillitate, & difficili ciborum concoctione laborantem, Nardino unguento lana imposito, & ori ventriculi admoto curavit.” *Geoff.* ii. p. 108; who is here more liberal than philosophical in his commendation. *Marcus Aurelius*’s disease, according to *Galen*, was “ stomachi attritus ab assumpto cibo, antequam excernatur, æstuante:” and, besides the ointment, his feet were rubbed with warm hands, and he took some “ vinum sabinum, pipere insperso. This pulcherrima historia, as *Hoffman* terms

terms it, you have in *Galen's libro de præcognitione, cap. xi. class. 4. p. 218. H.* According to *Geoffroy*, “ de Nardo Celtica. . . Tota planta aromatica est, & radicem Valerianæ Sylvestris odorem æmulat. . . Virium earundem est cum Spica Indica. Majore tamen cum utilitate in urina cienda, ventriculo roborando, & flatibus discutiendis adhiberi dicitur.” *M. M.* ii. 110. Can this be said of Valeriana Sylvestris?

## S E C T. III.

They may be given in substance to ʒj; in infusion to ʒij. Both are ingredients in the Theriaca and Mithridatium; but otherwise are not much used. The Olea Nardina are now out of use.

“ Nardi Indicæ dosis a ʒß ad ʒij in substantia, & ad ʒß in infusione.” *Geoff.* ii. 109. He omits the dose of the Celtic. *Joannes Faber Bambergensis, Medicus Romanus*, published a Disputatio de Nardo & Epithymo, adversus Josephum Scaligerum, qua plantarum istarum vera descriptio continetur: Dioscoridis, Propertii & Ovidii loca declarantur, & a corruptela defenduntur: Medicorum denique & Pharmacopæorum honos a Scaligeri calumniis vindicatur. *Romæ* 1606. in 4to.

In *Ovid* we have,

“ Una est quæ reparet, seque ipsa refeminet, ales;  
 “ Assyrii Phœnica vocant. Non fruge, neque herbis,  
 “ Sed Thuris lachrymis & succo vivit Amomi.  
 “ Hæc ubi quinque suæ complevit secula vitæ  
 “ Illicis in ramis, tremulæve cacumine Palmæ,  
 “ Unguibus & pando nidum sibi construit ore.  
 “ Quo simul ac Casias, & Nardi lenis aristas,  
 “ Quassaque cum fulva substravit Cinnama Myrrha;  
 “ Se super imponit, finitque in odoribus ævum.  
 “ Inde ferunt, totidem qui vivere debeat annos,  
 “ Corpore de patrio parvum Phœnica renasci.  
 “ Cum dedit huic ætas vires, onerique ferendo est  
 “ Ponderibus nidi ramos levat arbores altæ;  
 “ Fertque pius cunafque suas, patriumque sepulchrum:  
 “ Perque leves auras Hyperionis urbe potitus,  
 “ Ante fores sacras Hyperionis æde reponit.

*Metam.* l. 15. v. 392—407.

## S Y M P H Y T U M.

## S E C T. I.

Symphytum, Symphytum majus, Consolida, Consolida major *effic.* Symphytum, Consolida major, *B. P.* 259. *H. Ox.* iii. 444. flore purpureo, *T.* 138. Symphytum magnum, *Dod.* 134. *J. B.* iii. 593. Consolida major, *Ger.* 806. *R. H.*



*R. H.* 505. *Symphytum magnum*, *J. B. R. Syn.* 230. *Symphytum majus vulgare*, *Park.* 523. *Symphytum*, foliis ovato-lanceolatis, *H. Cl.* p. 47. Comfrey, Comfrey confound, Knit-back, Bone-set, Blackwort.—This has a large branched and wrinkled root, of a black colour on the outside, white within, of an insipid viscous taste, and no smell.

It grows by river-sides, ditches, and in watry places, in England, Holland, France, &c. flowering in June; and is probably the *Symphytum alternum* or *Peſton* (à πηγνυω, compingo, concreſcere facio) *Dioſcoridis*, who, l. 4. c. 10. p. 249. thus ſays, “*Symphyton alterum quod aliqui Peſton (πεκτον) vocant, caulem emittit bicubitalem, aut etiam altiore, levem, craſſum, anguloſum & ſeu Sonchi inanem: circa quem ex intervallis, haud ita magnis, folia exeunt hirsuta, anguſta longiuſcula, ad Bugloſſi foliorum ſimilitudinem: habet vero caulis eminentias quaſdam ſecundum angulos porrectas, adjacentibus & velut annexis foliis tenuibus, quæ è ſingulis prodeunt alarum ſinibus. Sunt inſuper flores lutei, ac ſemen circa caule mœu verbaſci. Totus autem caulis, ac folia quoque ipſa, ſubaſpera lanugine horrent, attractuque pruritus excitant. Radices dimittuntur foris nigræ, intus candidæ, glutinoſæ, quarum etiam eſt uſus.*” *N. B.* Variat multum flore.

*Symphytum* vocatur à συμφύειν, connasſci; “quod carnes dum coquantur conglutinet additum.” *Dioſc.* l. 4. c. 9. p. 249. & *Plin.* l. 27. c. 6. p. 670. “Hinc Latinis *Conſolida* dicitur.” *B. P.* From ſome ſuppoſed ſimilitude in virtues ſeveral other plants have got the name *Conſolida*: as 1. There is a *Conſolida media*, *i. e.* *Bugula*. 2. *Conſolida minor*, *i. e.* *Brunella*. 3. *Conſolida Sarracenica*, *i. e.* *Solidago Sarracenica*, *Virgæ aureæ* ſpecies. 4. *Conſolida Sarracenica altera*, *i. e.* *Balsamita mas*. 5. *Conſolida regalis*, *i. e.* *Delphinium*. 6. *Conſolida minima*, *i. e.* *Bellis minor*. The 1ſt, 2d, 3d, 5th, and 6th, are reckoned vulneraries; the 4th is an acrid aromatic. *Our Pharm.* takes in the 1ſt, 4th, and 6th; but none of them are commonly, I may ſay ever, uſed here. “*Plantæ plurimæ conſolidarum nomen acceperunt propter virtutem vulnera conſolidandi quæ ipſis tribuitur. Sex ſeptemve in officiis uſitata, ſub hoc nomine proſtant: ſcilicet, Conſolida major, ſeu Symphytum majus: Conſolida media, quæ duplex; Bugula una, altera Bellis major ſive Leucanthemum: Conſolida minor, quæ etiam duplex, Brunella & Bellis minor: Conſolida rubra, ſive Tormentilla: denique Conſolida Sarracenica, quæ Virga aurea. . . Alia Conſolida in hortis ſæpius colitur ad ornamentum, quæ Conſolida regalis ſeu regia, ſed nullius fere uſus eſt.*” *Geoff.* iii. p. 353.

## S E C T. II.

It relaxes and lubricates the fibres; and increaſſates and ſweetens, or blunts the acrimony of, the fluids; is called aſtringent and vulnerary; and commended internally for coughs, hoarſeneſs, conſumption, heat of urine, fluxes, hæmorrhages, &c. and externally for fractures, wounds, and ulcers.

“*Officin. Nat.* Radix, Folia, Flores. *Vires.* Caliditate temperatum eſt, ſiccatur 2. Vulnerarium eſt è præcipuis celeberrimum, mucilaginofum, increaſſans, acrimoniamque humorum obtundens imo & incidens, adeoque partium mixtarum. *Uſus præcip.* in fluxionibus quibuſcunque, imprimis alvi, in eroſione pulmonum ac phthiſi; in herniis, ruptis venis, fractis offibus,

“ &c. Extrinsecus vulnerum sanguinem sistit, fracturas ossium, ac vulnera consolidat. *Præp.* 1. Aqua, ex herba cum radice. 2. Conserva, ex floribus. 3. Condita radix. 4. Syrupus de symphyto. 5. Extractum symphyti. 6. Extractum sanguineum, sanguis. 7. Oleum stillatitium, ex radice sicca per retortam elicitur.” *Schroder.* p. 689.

1. It is void of all acrimony, and abounds with a mucilaginous or viscous juice. “ Sapore est fatuo, sed magnopere viscido & lento.” *J. B.* It is more viscid than *Althæa*, and probably less saponaceous. “ The leaves are insipid, glutinous, and redden very little the blue paper; the roots redden it a little more, and are full of a slimy juice. By a chymical analysis, Comfrey yields several acid liquors and much earth, very little sulphur, no volatile salt; but a little urinous spirit, and a moderate quantity of fixed salt, (*Regist. de l'Acad.*) so it is probable that it acts principally by its viscid juice, which fire destroys (*par son suc glaireux que le feu detruit.*)” *T. Hist.* p. 306. — 2. It is much commended for wounds, ulcers, &c. externally; as well as in all diseases from thinness and acrimony of the juices, internally. “ Extrinsecus . . fracturas ossium consolidat, quotidianâ experienciâ attestante; unde & Anglice a nonnullis *Bone-set* dicitur. . . Laborat quidam ulcere cacoethe, quod chirurgi cancrum pronuntiabant, sed curare non poterant. Accedens agyrta, accipiebat radicem Symphyti majoris, & derafo superiore cortice nigricante, reliquam ut poterat contusam, & linteo inductam, quotidie bis imponebat. Æger convaluit: cancer tamen recens erat, nec octo aut decem circiter septimanas excefferat. *Ex Obs. Reusneri.*” *R. H.* p. 505. where it is commended for pains, though gouty or venereal. It is commonly called astringent, “ astringit, consolidat,” says *Mr. Geoffroy*, iii. p. 355; and below, “ potenter astringit;” and yet owns that “ crassiore mucagine pollet quam *Althæa*, cum qua convenit:” compare this with what he says of *Althæa*. *Ibid.* p. 71. “ Ab illa mucagine lenta & subdulci, qua *Althæa* turget, pendent potissimum illius virtutes, emolliendi nempe, laxandi, discutiendi, dolores leniendi, &c.” What can be more opposite to astringent?

“ Analyti chymica ex radicem recentium Symphyti libv prodierunt humorum libiv, 3vj, 3vj, gr. liv; olei spissi gr. lx: carbo pendebat 3vj, 3ij; unde cinerum 3ij, 3v, gr. liv, & inde salis fixi alcali 3v, gr. xxx. (ergo terræ 3ij, gr. xxiv:) jactura fuit 3ij, 3v, gr. xxx.” *Geoff.* iii. 355. He commends it in ulcers of the lungs, kidneys, and bladder; hæmorrhages; the dysentery &c. in which it is of great use. “ Ex Symphyti radicibus paratur syrupus Boyleanus, a celeberrimo Roberto Boyle plurimum laudatus pro hæmopticis. Sic conficitur R Rad. Symphyti 3iv, fol. plantag. M. xii. Contusis exprimat matur succus, cui adde sacchari pondus æquale, & F. Syrupus.” *Geoff.* iii. 357.

### S E C T. III.

It may be given in substance, infusion, decoction, like the *althæa*. We have a syrupus de Symphyto, not different much from Boyle's, and of the same ingredients: and it is used in the emplastrum defensivum.

“ Pulvis radice exhibetur ad 3j. in infuso & decocto præscribitur ab 3ß ad 3j. Conditum quoque ex ea paratur in officinis, ad 3ij vel 3ß sumendum.” *Geoff.* iii. 355. There is no danger in exceeding.



## T O R M E N T I L L A.

## S E C T. I.

Tormentilla, Heptaphyllum, *off.* Tormentilla Sylvestris, *B. P.* 326. *T.* 298. Tormentilla, *Dod.* 118. *Ger.* 992. *J. B.* ii. 598. *R. H.* 617. *Syn.* 257. Tormentilla vulgaris, *Park.* 393. Pentaphyllum, aut potius Heptaphyllum, flore aureo, tetrapetalo, Tormentilla dictum, *H. Ox.* ii. 190. Tormentilla, *H. Cliff.* 194. Septfoil, or Tormentil.—This has a pretty large tuberous root, of a blackish colour on the outside, reddish within, of an astringent taste.

It is common on dry sandy pastures and hilly grounds, flowering in June and July. “Tormentilla, quod radices pulvis, cum aluminis & pyrethri momento, cavis dentium inditus, dentium tormentum sive cruciatum sedet. . . Sunt qui chrysogonum Dioscoridis suspicantur.” *B. P.* “Tormentilla minime a tormentis dentium ita dicta, quibusdam a torminibus seu dysenteria, aliis propter radices rubedinem. Qui chrysogonum Dioscoridis augurantur, folia querna non æstimant.” *Hoffman.* p. 442.

## S E C T. II.

It is astringent, and not so harsh as the Bistort; called vulnerary and alexipharmic; and commended in fluxes and hæmorrhages, and in the pestilence, small-pox, measles, &c. especially if accompanied with a diarrhœa.

“Siccatur 3°. sine insigne caliditate, astringit, vulneraria est, diaphoretica, ac alexipharmaca. *Usus præcip.* in peste, morbisque cæteris malignis, imprimis si cum fluxu alvi conjuncti sunt, in catarrhis exsiccandis, in lue venerea, in veneno hausto, in vulneribus. Summatim, non est vegetabile, quod in fluxionibus quibuscunque (alvi, uteri) efficacius sit, quam hæc Tormentilla radix. Extrinsecus iisdem adhibetur variis in affectibus, in vomitu, vulneribus, & similibus. *Præp.* Aqua stillatitia; ex herba tota cum floribus collectis Maio.” *Schrod.* 693.

It is of a styptic taste, turns a solution of vitriol to ink, and will tan leather like oak bark. “Odoris est subaromatici, saporis austeri.” *Nucl. Belg.* p. 295. “The root is styptic, very bitter, and reddens much the blue paper; the leaves redden it less; they have a viscous taste (une faveur gluante). By a chymical analysis this plant gives but little urinous spirit, no volatile salt, much acid, oil, and earth. It is vulnerary, astringent, deterfive; and has the same virtues with Pervinca and Pentaphyllum.” *T. Hist.* p. 538. But it is neither bitter, viscous, nor deterfive. “In insulis Ferroensibus Tormentilla utuntur, defectu corticum, in pellibus animalium præparandis. *Tb. Barthol. Ait. Med.* 1671.” *R. H.* “Andreas Vesalius (de rad. China, p. 84.) holdeth that the decoction of this root is no less effectual to cure the French pox than Guajacum or China, because it so mightily resisteth putrefaction.” *Park.* who observes its use in ruptures, contusions, &c. “Ad diarrhœam commendat Etmullerus extractum Tormentillæ, præmisso, si opus est, Rhabarbaro una alterave vice: hinc exhibitum (inquit *D. Hulfe*) a ʒss ad ʒj. quod remedium præcellit omnibus aliis medicamentis in dysenteria epidemica.” *Vide Etmul. Prax. cap. de Diarrhœa.* *R. H.* 618.

S E C T.

## S E C T. III.

It may be given in powder to ʒj, in infusion or decoction to ʒij. We have no preparation of it; but it is an ingredient in the Decoctum album compositum, Diafscordium, & Diafscordii decoctum.

“Astringit; valet ad vomitum, fluxus alvi, dysenteriam, hæmorrhagias, & alias excretiones nimias; conducit in febribus malignis, variolis, &c. quibus opitulatur, vi alexipharmaca, & diaphoretica; valet ad partium laxitatem, & est stomachica. Datur in pulvere ad ʒij, in decocto ad ʒß. Fit extractum.” *Nucl. Belg.* 295.

## T U R P E T H U M.

## S E C T. I.

Turpethum, Turbith, *offic.* Convolvulus Indicus, alatus, maximus; foliis Ibisco nonnihil similibus, angulosis; Turbith officinis, *H. L.* 177. *T.* 84. *R. H.* 1882. Turpethum repens foliis Althææ, vel Indicum, *B. P.* 149. Turbith, *Dod.* 380. *Garc. Clus. Exot.* p. 206. Turpethum Alexandrinum officinarum, *Ger.* 415. Turpethum officinarum, *Park.* 1609. Tirastawalu, *Zeylanensibus*, *H. L.* 177. Turbith.—The root is long, woody, about a finger thick, brown on the outside, whitish within, of a soft sweetish taste at first, then somewhat pungent and nauseous, and of no smell.

“Turpethum sive Turbith, *offic.* Terbadh *Avicennæ*, Turbedh *Arabum*, τερπειθ *Græcorum recentiorum*. Radix est, vel radices cortex a lignoso medullio separatus, exsiccatus, dissectus in frusta oblonga, digitum crassa, resinosa, foris fusca vel cinerea, intus albida. Sapore subacri nauseoso. . . . Solent impostores radicum frusta gummi vel resina extrinsecus illinere, ut magis gummosum appareat.” *Geoff.* ii. 146. “Radix est oblonga, pollice circiter crassa, ramosa, coloris externe fusco grysei, interne albicantis, aut cinericei, per medium secundum longitudinem dissecta, & a corculo imundata, lignosa, difficilis ad frangendum; saporis est primo dulcis, deinde moderate acris, & nauseosi.” *Nucl. Belg.* 297. “Modo cortex, modo radix oblonga crassa resinosa, foris fusca, intus albida, saporis subacris & nauseosi.” *Dale* 183. What I have seen of the roots cleft seem to be the thicker and the upper part of them, freed from a spongy pith only. *Is it all so?*

It grows plentifully in Ceylon and Malabar, as *P. Herman* informs us, who first favoured the public with an accurate description and figure of the plant ex autopsia, in his *H. L. Batav. edit.* in 1687. “Quod nos Turbith vocamus, eodem nomine & Arabibus & Persis, & Turcis appellatur.” *Garcias*. Fuchsius and Lemery derive it à turbando. Vide *Hoffman.* p. 76, who thus concludes: “Laudo Ruellii illud, nulla medicina incertior est, quam quæ ex alieno orbe petitur. Hoc ipso damno, utraque garamantas ablego triplex Diaturbith nostrum, pulverem de Turbith, Trageam laxativam, Pilulas de Turbith, & si quod aliud commenta est curiositas nostra.”



## S E C T. II.

It is a strong and resinous cathartic; called a phlegmagogue; and commended in the gout, asthma, palsy, dropsy, leprosy, French-pox, &c.

“Calfacit 3. viscososque humores, five pituitam, fortiter & à remotissimis partibus, juncturisque elicit: unde & diuturnis morbis maxime conducit. Imprimis proficuum ejus usus est in arthritide, ventriculo pituita abundante, asthma, lue venerea, hydrope, elephantiasi, scabie, &c. Corrigitur zingibere, mastiche, pipere, cinnamomo, fœniculo, quia ventriculo nauseam & vomitum procreare per se solet. Dosis a ℥ij ad ℥iij, in infusione a ʒj ad ʒiij. N. infantibus & gravidis dare caveto. *Præp.* 1. Species Diaturbith cum rhab. 2. Pulvis *Stockstaldi* dictus. 3. Pilulæ de Turbith stomachicæ Mesue. 4. Acetum de Turbith: varii generis. 5. Extractum; cum sp. vini. Dosis a gr. vj ad x, & plura.” *Schrod.* p. 777.

As in taste it somewhat agrees with mechoacan, jalap, & scammony; so it is a species of the same genus; and has its virtues lodged chiefly in its resin: but, not being all equally resinous, its dose is uncertain; and the more so because it does not keep well. It is generally thought a slow and lazy cathartic, and hurtful to the stomach; and is seldom given per se. “*Mr. Deidier, M. D. & P. in Acad. Monsp.* gives Turbith in the dysentery, to the same dose and in the same manner as the Ipecacuan is given.” *Chomel*, p. 63. *Vide Vitrum Antimonii.*

“Ex Turpetho per analysim chymicam, præter phlegma acidum & urinosum, sal volatile concretum, oleum & terra copiosè extrahuntur. Ex ea ope aquæ extracti gummosi copia non mediocris, resinosi vero portio quædam ope spiritus vini eliciuntur. Præterea infusio Turpethi chartam cœruleam sub-rubro colore tingit: unde conjicere licet Turpethi vim pendere a quadam gummi-resina conflata ex sale ammoniacali cum oleo crasso conjuncto. Efficax censetur remedium ad crassos, lentosque humores a remotioribus corporis partibus fortiter evellendos adeo ut in proverbium abierit: *Quod non extrahit Agaricus, extrahit Turpethum; quod Turpethum non promovet, elicit Colocynthis.* In diuturnis morbis maxime frigidis, commendatur, præsertim in arthritide, paralyti, hydrope.” *Geoff.* ii. 148.

“Purgat, & quæ educit viscidissima sunt, & serosa: ordinarie præscribitur ad morbos soporosos, paralytim, hydropem, &c. Datur in substantia ad ℥ij; in infuso ad ʒij, quod fit in spiritu vini, quia est resinosa; unde etiam tormina, & alia incommoda excitat instar jalappæ, quæ eodem modo corrigitur.” *Nucl. Belg.* p. 298. “Turbith is a pretty strong cathartic, purging tough serous humours from the remote parts, and thereby helps the dropsy, gout, and rheumatism, and is put into several of the stronger purging compositions.” *Mill. Bot.* 444. Mr. Geoffroy does not tell who analysed it: he gives it a gummi resina, in place of the resina of others. “Cortex ruptus stillat succum lacteum glutinosum, in pallide-flavescentem resinam ilico crescentem gustus primo subdulcis, post modum pungitivi, vomitum minantis.” *H. L.* 180. He agrees with Schroder, who copies Mesue, in making it draw a remotioribus partibus, &c. though it is uncertain whether this is Mesue’s Turbith; of which he says, “purgat tarde & imbecilliter, & stomachum ad nauseam subvertit, & usu crebro corpus extenuat.” *Vide L.* 2

c. 2. p. 50. 2. We can do very well without either Agaric or Turbith: and the last is excluded the *London M. M.*

## S E C T. III.

Turbith has been given in substance to ʒj, in infusion to ʒij aut ʒiij, in extract to ʒj; and the resina to gr. xij. It is now excluded out of *our* extractum Rudii, as of late out of the extractum catharticum *Ph. Lond.* and is never used here.

*Mesue* gave his Turbith in powder à ʒj ad ʒij; in decoction a ʒij ad ʒiv. "Dosis Turbith a ʒj ad ʒiʒ Sennerto & Duncano: a ʒij ad ʒiv Morello: ad ʒij Clandino: ad ʒiʒ Riolano." *S. Pauli*. "In substantia exhibetur a gr. xv ad ʒj: infusum vero a ʒiʒ ad ʒiij: extractum ope vini a ʒj ad gr. xxx: resina ope spiritus vini ad gr. xv." *Geoff.* ii. 148. Hence it is evident that its vis is in its resina, not gummi-resina.

## T U S S I L A G O.

## S E C T. I.

Tussilago, Bechium, Farfara, *offic.* Tussilago vulgaris, *B. P.* 197. *T.* 487. Tussilago, *Lob.* 320. *J. B.* iii. 563. *Ger.* 811. *Park.* 1220. *R. H.* 259. *Syn.* 173. *H. Ox.* iii. 130. Bechium, sive Farfara, *Dod.* 596. Tussilago, scapo imbricato, unifloro; foliis cordatis, angulatis, denticulatis, *H. Cliff.* 411. Common Coltsfoot, or Tussilago.—This has long slender creeping white roots, of a subviscid taste, a little rough, like that of artichokes.

It is very common, not only by water sides, and in moist places, but even in dry sandy grounds and corn-fields, being difficultly eradicated. It flowers in February or March. The leaves and flowers also are medicinal. *Usu:* Herba & flores; *Ph. Ed.* (potius folia & flores) following the *Old Lond. Disp.* The *New* one throws it out altogether. *Schroder* omits the flowers. The root is most used abroad, and almost in every Pharmacopœia.

Bechium a βηξ, tussis, unde Tussilago. Farfara from Farfarus, or Farfarum, idem quod populus. "Viscum legioni dedi, fundisque eos prosternam" ut folia Farfari." *Plautus*. Vide *Bodæum in Theophr.* p. 876. It is not ill described by *Dioscorides*. "Tussilago (βηχίον) folia habet hederaceis similia, sed majora, sena septenave a radice prodeuntia, inferne subalbida, superne vero virentia, pluribus angulis prædita; caulis palmi altitudine, flos ex luteo albicans, qui verno tempore prodit, at quamprimum una cum caule amittitur. Ex quo factum ut nonnulli herbam hanc sine caule, ac sine flore esse existimaverint. Radix tenuis, nec supervacua. Nascitur circa scaturigines aquarum, & riguis locis." Vide *l. 3. c. 126. p. 226.* In the book *de internis affectionibus*, *Ed. Fæf.* p. 532. l. 34. attributed to *Hippocrates*, the root βηχίον in honey is ordered in ulceration of the lungs; as are the leaves parboiled in wine, to be applied to an ulcerated luxation, by *Hippocrates* himself, *L. de articulis*, *Ed. Fæf.* p. 829. l. 8. "Radices saporis subacris, cum levi lentore; odoris nullius." *Herm. Cyn.* p. 161.



## S E C T. II.

It is an antacid, and somewhat detergent or emollient, vulnerary; called pectoral; and commended in coughs, asthmas, vomicas, consumptions, heat of urine, &c. Some smoak the leaves among tobacco for diseases of the lungs.

“ Radices & folia virentia, temperatis proxima sunt; aliis refrigerant; siccata vero modice acria & calida evadunt. Planta est thoracica. *Ufus præcip.* interne in tussi, orthopnoëa, vomicisque pectoris, quibus singulis & fumus ejus ore hiantè attractus mederi creditur. Extrinsicus profunt ulceribus calidis & inflammationibus folia recentia imposita. *Præp.* 1. Syrupus de Farfara, è succo foliorum. 2. Conserva, è floribus. 3. Aqua stillat. è foliis. 4. Succus novem diebus bibitus quartanam tollere dicitur.” *Schrod.* 695.

1. It is a mild plant, and seems to partake somewhat of the nature of Bar-dana, and somewhat of Althæa. “ Radix saporis est temperati, parum mucilaginosi & nitrosi. Est diuretica, & valens ad acrimoniam urinæ.” *Nucl. Belg.* 298. “ Tussilago has bitter leaves, viscous, a little styptic, tasting of artichocks; which reddens very little the blue paper. The leaves and flowers are very emollient, moderately aperitive, and consecrated, so to speak, to the diseases of the breast, caused by acrid and salt serosities.” *T. Hist.* p. 235. —2. It has been in all ages a famous pectoral and vulnerary. Dioscorides, Pliny, Galen, recommend for coughs the drawing the smoak of burning Tussilago leaves, through a funnel or reed, into the mouth, or rather lungs. “ Folia suffita vero sicca, ita ut ex iis fumus per infundibulum, hiantè ore excipiatur, hauriaturque eos sanant qui sicca Tussi, & orthopnoëa infestantur; pectoris etiam vomicas rumpunt. Eundem effectum præbet suffita radix.” *Dioscor.* l. c. “ Tussim sedat Bechion, quæ & Tussilago dicitur. . . . Hujus aridæ cum radice fumus per harundinem haustus & devoratus, veterem sanare dicitur tussim: sed in singulos haustus, passum gustandum est.” *Plinius*, l. 26. c. 6. p. 651. “ Bechium sic nominatum est quod tusses & orthopnoëas juvare sit creditum, si quis folia arida aut radicem in prunis urens, ascendentem inde fuliginem inspiratu attrahat.” *Galen. Simpl.* l. 6. p. 414. H. This is much easier than it would be if it were mixed with brimstone. “ Tussilaginis foliorum cum flore sulphuris, & succino in pulverem comminuto, mixtorum & incensorum fumus ore haustus, instar nicotianæ phthisin aliquando sanavit. *Boyle, de Util. Phil. & D. Hillerus, Medicus Marchionis Brandenburgici*, pueros atrophiam laborantes plurimos restituere solis foliis ungulæ caballinæ, quæ & concisa oleris ritu, & pulve farinacea imbuta, atque in butyro, salviæ in modum frixa, comedenda diutius exhibebat. *Ex Obs. Reusn.*” *R. H.* “ Folia trita ex melle imposita erysipelati omnique inflammationi medentur.” *Dioscorides*, l. c.

## S E C T. III.

The roots, leaves, and flowers, may be used in substance, infusion, decoction, or any other way at pleasure. The Syrupus Tussilaginis was always a

shop medicine till 1744; and the Tussilago keeps its place in the Symplicium Pectoralis.

## V A L E R I A N A.

## S E C T. I.

1. *Valeriana hortensis*, *Valeriana major*, *Phu hortense*, *off.* *Valeriana*, *hortensis*; *Phu folio Olusatris* *Dioscorid.* *B. P.* 164. *T.* 132. *H. Ox.* iii. 101. *Valeriana major*, *odorata radice*, *J. B.* iii. 2, 209. *R. H.* 388. *Valeriana hortensis*, *Dod.* 349. *Ger.* 1075. *Phu majus* sive *Valeriana major*, *Park.* 119. *Valeriana*, *foliis infimis integris proximis laciniatis, caulinis pinnatis*, *H. Cliff.* 16. Great Garden Valerian, or Setwall.—The root is pretty large, spreading obliquely on the surface of the earth, about a finger thick, of a brownish colour on the outside, whitish or greenish within; of a disagreeable sweetish taste at first, then aromatic and bitter; and of strong smell.

It is uncertain where it grows naturally. “Habitat in Alsatia.” *L. Spec. Pl.* p. 32. In gardens it flowers in June and July. The root only is used. “In horti plurimum colitur: reperitur etiam in quibusdam altis montibus in sylvis.” *J. B.* This is the *Phu verum* of *Cordus* in *Diascor.* *Valeriana optima Cæs.* (vide *B. P.*) and used to be preferred to the other till of late. It was indeed the only officinal species: “Quæ in officinis usurpatur est prima B. in pinace.” *Hoffman.* p. 459: but it is now in a manner jostled out undeservedly by the following.

2. *Valeriana Sylvestris*, *Valeriana Sylvestris major*, *Phu Sylvestre offic.* *Valeriana*, *Sylvestris major*; *Phu similitudine Elaphobosci* *Dioscoridi*, *B. P.* 164. *Valeriana Sylvestris major*, *B. P. T.* 132. *R. H.* 388. *Syn.* 201. *H. Ox.* iii. 101. *Valeriana Sylvestris magna aquatica*, *J. B.* iii. 2, 210. *Valeriana major, Sylvestris*, *Ger.* 1075. *Valeriana Sylvestris*, *Park.* 122. *Phu Dioscoridis Col. Phyt.* 113. *Ecpbr.* i. 210. *Valeriana foliis omnibus pinnatis*, *H. Cliff.* 15. Great Wild Valerian.—The root consists of a number of fibres issuing from a little head, together with slender strings, by which it creeps and propagates itself, of a brownish colour on the outside (when dried) whitish within, and of the same taste and smell with the former, but not so strong.

It grows plentifully in moist hilly places, meadows, woods, near waters, &c. flowering in June. “In montibus, collibusque non aridis, sed aliquantulum umbrosis, atque etiam uliginosis & pratensibus hic frequens est.” *Col. Phyt.* 120.

“Nescio sane a quo Valerio sit dicta: id enim malo, quam valorem, seu valentiam. Græcis quæ esse credo, à quæ abominantis: olet enim radix felinum quid, non tamen sine grato odore nardi.” *Hoffman.* 459. Many more think the Garden Valerian is the quæ *Dioscoridis*. *Columna* contends for the wild. And *Baubinus* is of opinion that *Dioscorides*’s description takes in both. “Folia namque Olusatris, & radice forma hortensis; at folia elaphobosci, & floris color Sylvestris majori conveniunt.” *Baub.* in *Matth.* p. 40. Vide *Dioscorid.* l. 1. c. 10. p. 10. I cannot however see any great resemblance between the *Folia Smyrni* and *Valerianæ hortensis*, or *Pastinacæ* & *Valerianæ Sylvestris*; nor wherein the flowers agree with the *Narcissus*.

“Phu,



“ Phu, quod & ipsum aliqui Sylvestre Nardum appellant, in Ponto nascitur, foliaque profert Elaphobolico, aut Oleri atro (*ἑπποσειλίω*) similia: caulem cubitalem, aut etiam majorem, lævem, mollem, purpurascentem, in medio cavum, geniculis interceptum. Flores ad Narcissinos proxime accedunt, sed & minores (*al. majores*) sunt & teneriores, & in albicante colore purpurei. Radix superiore quidem sui parte digiti parvi crassitudinem ferme æquat, sed habet ex obliquo capillamenta, junci aut veratri nigri instar invicem implicata, flavescentia, odorata, atque adeo odore Nardum æmulantia, cum virola quadam gravitate.” *Dioscorides*.

## S E C T. II.

They are of a bitterish aromatic taste; stimulating, attenuating, diaphoretic, alexipharmic, diuretic, purgative, spasmodic, cephalic, hepatic, uterine, anthelmintic; called nervine, and commended in melancholy, vapours, palsy, vertigo, malignant diseases, worms, &c. The wild Valerian is reckoned a specific for the Epilepsy.

“ Optima censetur Valeriana hortensis major, *C. B.* cui succedit Valeriana palustris minor, *C. B.*—*Officin. Nat.* Radix præcipue; tum & herba Phu veri (*i. e.* hortensis). *Vires.* Calfaciunt, siccant, attenuant, aperiunt, alexipharmacæ, sudoriferæ ac diureticæ sunt. *Ufus præcip.* in imbecillitate visus, peste, asthmate, pleuritide, obstructionibus epatis, lienis, uræterum, hernia, ictero, & similibus. Extrinsecus confortant visum, maculas oculorum abstergunt, cephalgiam sedant, menses cient, sudorem promovent (in balneis), exsiccant catarrhos (suffitu), bufonum ac anthracum malignitatem corrigunt, globulos sagittasque infixas extrahunt, ulcera inveterata mundificant. *N.* Sunt qui radicem pro amuleto febris quotidianæ habent, eamque de collo suspendunt. *Præp.* 1. Aqua; ex integra planta, radice, caule, ac foliis, in fine Maii. 2. Extractum: itidem ex integra planta, vel radice sola, paratur.” *Schroder. 696.*

“ Valerianæ (hortensis) radix odoris est fortis, & saporis aromatici amari. Est alexipharmaca, sudorifera, cephalica, stomachica, carminativa, emmenagoga, diuretica, febrifuga, & aperitiva; convenit in asthmate; ingreditur theriacam.” *Nucl. Belg. 300.*

1. Both are bitter, nauseous, and aromatic, of a strong somewhat disagreeable smell like that of Asarum; and more odoriferous when dried than recent. “ Val. hort. radix subest transversim posita, digiti crassitudine, rugosa, multis fibris donata, albicans, sapore & odore aromatico radicum fere Asari.” *R. H.* “ Val. sylv. radix ex pluribus composita est fibris, albis; gustu aromaticis, reptatu subinde se propagantibus,” *J. B.* Phu minus (*i. e.* sylvestris) excalfacit & siccit valentius quam majus. Radix viribus omnibus prædita, quibus & major, gustu tamen acrior est.” *Matth. p. 38.* “ Both are of a very strong smell when dry.” *Mill. Bot. p. 446—448.* Vide *N. Disp. p. 223. B. P. & Tab. Ic. p. 165.* “ The leaves of wild Valerian are without smell, but have an herbaceous saltish bitter taste, and redden (assez) the blue paper. The roots redden it little: they are bitter, styptic, of an aromatic smell, but penetrating, and which has something disagreeable in it. This plant contains a sal volatile aromaticum oleosum, clogged with part of the acid  
“ of

“ of Sal Ammoniac; hence it is antiepileptic, sudorific, hysteric, and provokes the menses: it eases much asthmatic and vapourish persons. Camerarius commends it much in the jaundice.” *T. Hist.* p. 236 — 2. It purges by sweat and urine, and sometimes also by stool. “ Nec desunt qui Sylvestris Valerianæ radices aridas tulas ʒj pondo cum vino sumptas, infra supraque purgationem moliri affirmant.” *Dodon. l. c.* “ Αρω & κατω purgat.” *R. II.* “ Hoc imprimis certum est, valde diureticum esse.” *Hessman.* p. 459. It has been long much commended in many diseases. But that which has brought the Wild Valerian to be so much esteemed, and used in diseases of the head and nerves, was the effect it had on *Fab. Columna*, and others by his advice, in the epilepsy. “ Morborum sane frequens invasio, qua cæteris studiis me abdicare eo tempore oportuit, epilepsiæ præsertim, a qua Dei optimi maximi miseratione, beataque virginis matris intercessione, evasi, in hæc mentem induxit meam. Hæc enim de causa, Hippocratis, Galeni, aliorumque scripta revolvere cœpi: &c. *Præf. in Col. Phyt. edit. Neapoli 1592, in 4<sup>o</sup> minori.* And, treating of the Phu, he says: “ Hujus plantæ radicis odor atque sapor, longe superat Valerianam majorem sic dictam: atque ut ait *Dioscorides*, vini habet calefaciendi, & ciendi urinas, arida pota: sed & decoctum ipsius idem efficere potest. Facit etiam ad lateris dolorem, & menses ducit, & antidotis miscetur.” *Galenus* vero, “ Phu, aromatica quodammodo est hujus herbæ radix, nardo viribus similis: sed tamen ad pleraque infirmior, urinas movet plus quam Indica aut Syriaca nardus, perinde ut Gallica.—Recentiores vero, sub nomine Valerianæ Sylvestris, has vires tribuunt. Ruptis, vulsis, ex alto devolutis opem fert. Decoquantur folia ad aphthas, & oris ulcera. Antidotis etiam inseritur. . . . . Præter has vires plantæ huic tributas, addo & hanc proprietatem jamdiu in multis, atque memetipso expertam, ut pulveris radicis plantæ hujus sponte ortæ, extirpatæ antequam caulem edat, cochlearii dimidium cum vino, aqua, lacte, aut alio quovis decenti succo, & ægroti commoditate, & ætate, semel sumptum, aut bis, epilepsiâ correptos liberet. Hanc exhibendam pueris, & præsertim infantibus, hoc morbo facile laborantibus (quibus lacte propinandum pulv. jussi,) amico dono dedi: qui deinde Divino prius Numine fautore glorificato, pulvere hujus plantæ illis restitutam sanitatem affirmarunt. Hoc & aliis adultis nonnullis.” *Col. Phyt.* p. 120. “ Et confirmat Panarola. Sylvius quoque plus ei tribuendum putat quam Pæoniæ, ut quod sale volatili abundet.” *R. H.* In the *Mem. Acad. R. An.* 1706. p. 430. are two instances of its success. It commonly made them sweat, but sometimes purged: both passed worms before they were cured. *Mr. T.* says he has seen it have grand effects in the hysteric passion, and in violent paroxysms of the asthma. “ A chopine of boiling water must be poured on rad. ʒj, and the infusion drank by glasses.” *T. Hist.* p. 237.

“ Utilem esse etiam ictibus a muscis venenatis illatis autopsia me docuit, administrante *Rondeletio.*” *J. B.*

## S E C T. III.

They may be given in substance to ʒij, but ʒj is seldom exceeded; in infusion to ʒiv. It is used often by way of tea. The Garden Valerian is now  
never



never used; but the Wild never more frequently. It is an ingredient in the Aqua Bryoniæ composita, Aqua Pæoniæ composita, Tinctura cephalica utraque, Pulvis antiepilepticus, Mithridatium, Theriaca Andromachi, Theriaca Edinenfis, & Magma Hedychroi pro Theriaca.

## VINCETOXICUM.

### S E C T. I.

*Asclepias*, *Hirundinaria*, *Vincetoxicum*, *offic.* *Asclepias* flore albo, *B. P.* 303. *T.* 94. *Asclepias* flore albo, *Ger.* 898. *Park.* 387. *R. H.* 1090. *H. Ox.* iii. 611. *Asclepias* sive *Vincetoxicum* multis floribus albicantibus, *J. B.* ii. 138. *Asclepias* vulgi, *Apocynum Dioscoridis*, *Col. (Ecpbr.)* ii. 37. *Vincetoxicum*, *Dod.* 407. “*Hirundinaria* Brunf. *Gesn. hor. Trag. Lonic.*” *B. P.* *Asclepias* caule recto, annuo; foliis ovato lanceolatis; floribus confertis, *H. Cliff.* 78. Swallow-wort.—The root consists of a great number of long slender matted white fibres, issuing from a knotty spreading head, of a nauseous bitterish taste, and strong smell, somewhat like that of *Asarum*.

It grows naturally in Germany, France, Italy. In our gardens it flowers in July. *Asclepias* vocatur ab *Æsculapio* inventore: *Vincetoxicum*, perhaps, from *Nicetoxicum*, à viribus: *Hirundinaria* from the figure and colour of its opened ripe pods, somewhat resembling swallows. It seems to agree better to the description of the *Asclepias*, than of *Apocynum*, in *Dioscorides*: for it does not contain a proper yellow juice; though *Columna* says “*succo luteo turgere.*” ii. 38. This is true of the *Asclepias nigro flore*, *B. P.* but not so of the *Asclepias albo flore*, *B. P.* of which probably *Columna* is speaking: for his *Apocynum Dioscoridis*, *Phyt.* p. 111, is evidently this black Swallow-wort, of which he says “*succo turget luteo ingrato tota planta.*” p. 112. This, I say, is true, though *Linnaeus* denies it. “*Asclepias nigro flore*, *B. P.* specie differe “*vix credo; quæ in hortis rarius obvia est, minus scandit, nec succum istum flavum ostendit, quem authores tradidere.*” *H. Cliff.* p. 78: so that he seems never to have seen it. “*Asclepias* ab *Apocyno* differt succo limpido. . . . At “*Columna Asclepiadem succo dilute luteo turgere scribit, non limpido seu aquo.*” *R. H.* p. 1090. And, according to *B. P.* *Asclepias albo flore* is *Asclepias vulgi Apocynum Dioscoridis*, *Columnæ*, viz. ii. 38; and *Asclepias nigro flore* the *Apocynum Col.* viz. *Phyt.* 111: though *Columna* designs, I think, the same plant in both plates. However,

Our *Asclepias* many think the *Asclepias Dioscoridis*; *Anguillara* doubts of it, and *Matthioli* denies it, *B. P.* “*Asclepias ramulos emittit longos, in quibus “folia longa, hederacea; radices numerosas, tenues, odoratas; florem graveo- “lentem, semen ceu Pelecini. Nasceitur in montibus.*” *Dioscor.* l. 3. c. 106. p. 219. (vide *Apocynum Dioscor.* l. 4. c. 81. p. 276. and *Bod. in Theoph.* p. 1139.) so that this is more probably the *Asclepias* than the *Apocynum*; though I cannot assert that it is either.

## S E C T. II.

It is an aromatic stimulating alexipharmic, antihysterical, diaphoretic, diuretic, and laxative; and commended for poisons, malignant fevers, lipothymies, dropsy, scrophula, &c. It seems to agree in many things with Valeriana.

“*Officin.* Radix, raro semen. *Vires.* Calfacit atque siccatur moderate, attenuat, alexipharmaca ac sudorifera est insignis. *Ufus præcip.* in peste, aliisque venenosis affectibus, in obstructionibus mensium, in palpitatione cordis ac lipothymia, in hydrope. Semen commendatur ad calculum. Extrinsecus usus tam florum quam radicum ac seminis est in ulceribus sordidis ac malignis purificandis, ad ictus insectorum venenatorum, in ulceribus mammarum, &c. Dosis rad. ʒj. *Præp.* 1. Aqua, ex integra planta. 2. Extractum, cum spiritu vini.” *Schroder.* p. 700. “Odoris est fortis, & saporis nauseabundi, fere instar scrophulariæ, radix tamen est amara & acris, cui ascribitur vis alexipharmaca, sudores & urinas movens, & antihysterica: folia vero detergunt & resolvunt; iis utimur ad M. 1. vel alterum in decocto, quod satis leniter movet vomitum.” *Nucl. Belg.* p. 305-1.

1. It is strongly or somewhat disagreeably aromatic and nauseous, neither acrid nor styptic, nor very bitter. “Radices sunt gustus nauseosi.” *J. B.* “Saporis sunt acris, amaricantis, nonnihil nauseosi; odoris graviusculi.” *P. Herman.* *Cynosf.* (*M. M. argento-rati* 1726, in 4to.) p. 44. “Sapore acri, subamaro, ingrato, nauseoso, odore graviusculo.” *Geoff.* iii. p. 133. “Asclepiadis radices amaræ sunt, subacres, aromaticæ.” *Idem*, iii. p. 135. “The roots are bitter, acrid, and redden a little the blue paper; the leaves taste a little saltish, and redden less the same paper.” *T. Hist.* p. 55: whence he conjectures the salt of this plant resembles somewhat the oxyfal diaphoreticum *A. Salæ.* — 2. The smell of the dried root is not so disagreeable as that of the recent or green root. — 3. By the analyses in *Mr. G.* the root yields above six times more earth than the herb; and not one-sixth so much of fixed salt; though its jactura is more than double. “Ex plantæ floridæ recentis, demptis radicibus lbv. per B. V. distillatis, prodierunt humoris limpidi saporis herbacei, primo obscure acidi, deinde manifeste acidi lbij ʒxij ʒviis. Massa exsiccata residua per retortam distillata præbuit humorum ʒxxj ʒiv gr. lvij. olei spissi ʒij ʒij gr. liv. Massa nigra in retorta superstes pendebat ʒvij: unde cinerum ʒj ʒviis; & inde salis fixi alcali ʒviis; (ergo terræ ʒj.) & jactura fuit ʒiv ʒj gr. lxix. Ex radicum recenter avulsarum lbv. per B. V. distillatis, prodierunt humoris limpidi, odoris & saporis aliquantisper aromatici, acris, linguam pungentis, primò obscure acidi, deinde manifestè acidi & subausteri lbij ʒxij ʒij gr. xxiv. Massa superstes per retortam distillata præbuit humorum ʒvij ʒij: olei spissi ʒij ʒiiis. Carbo pendebat ʒxiv ʒviis: unde cinerum ʒvij ʒviis; & inde salis fixi falsi ʒj gr. ij: & jactura fuit ʒix ʒj gr. xlviij.” *M. M.* iii. p. 134, 135. From which, with the taste and their effect on the blue paper, (from *T.* unnamed) our author says, “Concludimus hujus plantæ radices donari sale essentiali falso, tum vitriolico, tum ammoniacali, acido plusquam saturatis, & multa terra, multoque oleo tum tenui tum crasso bituminoso involutis: folia vero plus ammoniacalis salis continere.” But I neither see the reason for, nor the use of, this conclusion. — 4. Externally it is commended for foul ulcers, &c. “Externè usurpatur ad



“ morsus viperarum, ictus insectorum, ulcera mammarum, aliaque fordida  
 “ & maligna.” *Etmuller*. i. 680. Internally it is advised for the dropsy,  
 scrophulæ, lues venerea, pestilence, female obstructions, &c. “ In strumis  
 “ curandis mira est, ut sæpius vidi in India Orientali, ibi enim etiam nasci-  
 “ tur.” *Herman*. *M. S.* “ A Tyrolensium Alpium incolis singulare habetur  
 “ in curandis strumis; usurpando sæpius decoctum herbæ & radice, quas  
 “ etiam in porcis continuato usu curat. *Conf. M. A. N. C. An.* 1. *Obs.* 57.  
 “ p. 155. Ascitem curat per diuresim, anasarcam vero per sudorem.” *Etmuller*. l. c. “ De vi ejus ad hydropem, vid. *J. B.*” *R. H.* “ Propter ama-  
 “ rorem, lumbricos necat radix. . . Datur in mensibus stagnantibus. Contra  
 “ venena magna ei vis à totius substantiæ similitudine. Demorsis a serpente,  
 “ & cane rabido, exhibetur ʒiʒ ex decocto cardui benedicti, ad dies 40.  
 “ Pro præservatione a peste quotidie bibitur *Matthiolo*, qui in omnibus cordis  
 “ affectibus, cum appropriatis laudat.” *Hoffman*. p. 462.

“ Radix alexipharmaca est & sudorifera: in peste & aliis morbis mali moris,  
 “ plurimum commendatur. Menses & urinas provocat. Pulverata ad ʒj  
 “ exhibetur: in infuso vel decocto ab ʒʒ ad ʒj. Nonnullis, dum recens est,  
 “ nauseam vel vomitum levem excitat. In variolis, morbillis & febribus ma-  
 “ lignis, ejus decoctum a Cl. Tournefortio scorzonæræ decocto antepositum ad  
 “ diaphoresin promovendam. Decoctum ʒj in aquæ lbij. (chopine ʒ.) præ-  
 “ scribitur pro potu ordinario. Ad strumas sanandas, & ad menses suppressos  
 “ revocandos utile est idem decoctum, sæpius usurpatum.” *Geoff.* iii. 135.  
 Vide etiam *Herm. Cyn.* p. 44.

### S E C T. III.

It may be given in substance to ʒj; in infusion to ʒij. It is little used in *Britain*. Neither water or extract are drawn from it. I have ordered it once and again, in diet-drinks, for scrophulous persons, and generally with pretty good success; but never by itself alone.

“ Fit (è Vincetoxico) extractum. Radix ingreditur Aquam generalem, &  
 “ Orvietanum præstantius. Extractum ingreditur Theriacam celestem.” *Cod. Med.* 122.

## Z E D O A R I A.

### S E C T. I.

Zedoaria, Zedoaria longa, Zedoaria rotunda, Zerumbet, *offic.* Zedoaria longa, *B. P.* 35. *Theat.* 658. Zedoaria rotunda ejusdem, *Ibidem*, *R. H.* 1340. and 1912. Zedoaria, *J. B.* ii. 741. *H. Ox.* iii. 352. Gedwar, aut Geiduar, & Zedoaria, *Ger.* 1623. Zedoaria officinarum; Zerumbeth, sive Zurumbeth *Avicennæ & Serapionis*, *Dod.* 444. Zedoaria longa & rotunda, *Park.* 1612. Zedoaria *Zeylanica* Camphoram redolens, *Harankaha Zeylanensium*, *H. L.* 636. *Malankua H. Mal.* xi. 17. *tab.* 9. *Dale* 251. Setwall or Zedoary.—The root is pretty large, hard, solid, and tuberous; brought to us in pieces of different forms and sizes; of a gray colour on the outside, somewhat darker within; of a hot biting aromatic bitterish taste, and fragrant camphorate-smell. We have it from the East-Indies.

“ Zedoaria

“ Zedoaria longa *offic.* radix est tuberosa, nodosa, paululum compressa, foris  
 “ cinerea, saporis acris, amaricantis, aromatici, odoris fragrantis. . . Zedoaria  
 “ rotunda *offic.* cum priore crescit, sed in officinis nostris raro invenitur.  
 “ N. B. Zedoaria longa & rotunda non aliter inter se differre nobis videntur  
 “ quam quod ejusdem radices partes sint diversæ. Zerumbet, *offic.* Garz.  
 “ Zinziber latifolium sylvestre. *Herman. H. L.* 636. Walinghuru *Mus. Zey-*  
 “ *lan.* 51. Kua. *H. Mal.* xi. 13. *tab.* 7. In regno Malabar sponte oritur:  
 “ sed in officinis nostris non invenitur: præcedens enim cum eo confunditur.  
 “ An hoc aroma sit Zerumbeth *Arabum*, an vero ab illo diversum, difficile  
 “ nobis est determinare.” *Dale* 251.

“ Zingiber latifolium sylvestre. Zerumbet *Garz. ab Hert. l. i. c.* 43.  
 “ Walinghuru sive Zingiber sylvestre *Zeylanensibus*. An hoc Indicum aroma  
 “ sit Zerumbeth *Arabum*, quod Garzias ab horto adstruit, & an Zerumbeth  
 “ sit idem cum Zedoaria, Geiduar, Arnabo, Been albo vel rubro aut Carpe-  
 “ fio; an vero ab his diversum, id ex veterum codicibus difficulter colligi po-  
 “ test. Quippe non tantum in his, sed & innumeris aliis describendis, tam breves  
 “ & incerti reperiuntur Arabes; & quod maximum inter se adeo dissentientes,  
 “ ut non sine ratione dubitetur, an Arabibus accurata dictorum simplicium  
 “ fuerit notitia. Itaque satius fore judico in præsentiarum genuinam aromatis  
 “ nostri historiam proponere, quam de inextricabili hac quæstione ulteriorem  
 “ facere moram.” *Herman. H. L. Bat.* p. 636.

“ Zedoariæ radices sunt crassitudinis unius circiter digiti, coloris albo-grisei  
 “ externè, internè ejusdem, aut paulo fuscioris; saporis subamari, aromatici,  
 “ acris, & calidi, aliquomodo ad Zingiber accedentis, odoris aromatici grati:  
 “ ordinarie adferuntur in frustis oblongis, incurvatis, & inæqualibus, vel in  
 “ taleolis; oblongæ præstant.” *Nucl. Belg.* p. 313. “ Zedoaria longa *offic.*”  
 “ also Zedoaria rotunda, *offic.* C. B. *Park.* “ For they seem to be only differ-  
 “ ent parts of the same root, being alike in colour, smell, and taste. They  
 “ are of a whitish-brown colour on the outside, with here and there an ap-  
 “ pearance of a knot; the inside is somewhat darker, of a firm hard sub-  
 “ stance, of an hot aromatic bitterish taste, but not so biting as ginger. . . .  
 “ Zerumbet, *offic.* *Park.* is set down in the catalogue of simples in the dispen-  
 “ satory; but it is not known what it is, being never seen in our shops, the  
 “ round Zedoary being taken for it.” *Mill. Bot.* 462.

“ *Arabum* plurimi, sicut Serapio, Rhazes, Zedoariam & Zerumbeth idem  
 “ esse volunt. Avicenna Zedoariam distinguit a Zerumbeth, & præterea duas  
 “ Zedoariæ species agnoscit; unam quæ similis est radicibus aristolochiæ,  
 “ alteram quæ cum napello crescit, & est napelli antidotum, & Bisbua seu  
 “ napellus Moyfi, aut anthora dicitur. Serapio Zerumbeth, quod esse Zedoa-  
 “ riam interpretatur, radices esse similes aristolochiæ rotundæ dicit; addit Zin-  
 “ giberis colore & sapore similem esse, & ex Sinarum regione advehi. Cum  
 “ vero de Zerumbeth loquitur Avicenna dicit radices esse similes cypero, sed  
 “ majores, & minus odoratas, colore cinereo ex Sinarum regione advectas.  
 “ Avicenna insuper Zerumbeth & Zarnab distinguit, seu de his rebus differit  
 “ tanquam diversis, quas Serapio confundit. Serapioni igitur Zedoaria Ze-  
 “ rumbeth, & Zarnab una res eademque. Si igitur ipsi *Arabum* principes  
 “ his de rebus inter se dissentiant, frustra eas ex eorum scriptis distinguere  
 “ tentabimus. . . Zedoaria longa, *offic.* radix est tuberosa, densa, solida, sex-  
 “ tantali, trientali, aut quadrantali longitudine, crassitudine digiti, quæ utrin-



“ que in obtusum acumen definit, foris cinerea, intus candida, sapore acri,  
 “ amaricante, aromatico; odore tenui fragrante, ac valde aromaticam suavi-  
 “ tatem, dum tunditur aut manducatur spirante, & ad camphoram aliquatenus  
 “ accedente. . . Zedoaria rotunda *offic.* sola figura a longa differt. . . Ex  
 “ Sinarum regione utraque affertur, referente Garzia ab horto, & annuente  
 “ P. Hermanno. Rotunda rarius in officinis reperitur quam longa. Ex qua  
 “ nam planta oriantur nos latet. . . . Aliam Zedoariæ speciem Hermannus  
 “ recenset in *H. L. B.* scilicet, Zedoariam Zeylanicam camphoram redolentem.  
 “ . . . Zerumbeth *offic.* Garziæ. . . Planta dicitur Zingiber latifolium sylvestre.  
 “ *Herman.* Rarissimè occurrit in officinis.” *Geoff.* ii. 150—154.

I have made Zedoria & Zerumbet synonyma, only because we have nothing else for the Zerumbet; and if any want this, the Zedoaria is given for it. According to *Garcias* the Zedoaria grows only in China, and is very rare in the East-Indies, where, particularly in Malabar, there is great plenty of Zerumbet. “ Zedoary comes from the East-Indies, as well as from Madagascar. “ The round part of the root is called Zerumbeth; the long, Zedoary. The “ Zedoary is a good cordial; but the Zerumbeth is good for nothing in medicine.” è *Pomet, Sav. Diét.* ii. 229. He calls it a kind of wild Ginger. In vol. iii. p. 607. the *Sieur Carfeuil* says it comes from the West-Indies, by the way of Holland to Marseilles.

“ Cel. P. Hermannus in *H. L. B.* Zedoariam longam Zingiberis latifolii “ sylvestris Zerumbet *Garcia* nomine, pene & accurate describit.” *R. H.* 1912.

## S E C T. II.

It is an acrid stimulating diaphoretic, aromatic, cordial, sudorific, carminative, alexipharmic, cephalic, siagagogue; and commended in vomitings, colics, hysteric fits, asthma, palsy, scurvy, venomous bites, malignant fevers, &c. It is hotter and more penetrating than Galanga.

“ Calfacit & siccatur, incidit, flatus discutit, amarissimi est saporis, ac alexi-  
 “ pharmaca. *Ufus præcip.* in doloribus colicis atque ventriculi; animalium  
 “ venenatorum moribus opitulatur, lienteriam sistit, vomitiones reprimat,  
 “ menses ciet; suffocationi uteri efficaciter succurrit, alvi tæniae quasunque  
 “ enecat, antidotis permiscetur. *Præp.* 1. Condita Zedoaria. 2. Confectio  
 “ Zedoariæ. 3. Extractum, cum spiritu vini. 4. Oleum stillatitium. Cum  
 “ aqua ascendit. 5. Aqua stillatitia. 6. Balsamus. Ex oleo & corpore olei  
 “ nucistæ.” *Schroder*, p. 706. “ Sunt alexipharmicæ, sudoriferæ, insigniter  
 “ stomachicæ, carminativæ, anthelminticæ, emmenagogæ, antihystericæ, be-  
 “ chicæ, & febrifugæ; valent ad dolores post partum: dantur in pulvere: fit  
 “ extractum, infusum, &c. Dosis ad ℥ij.” *Nucl. Belg.* p. 313. Sapor ama-  
 “ rissimus, & diu linguam vellicans, ostendit partes heterogeneas efficacissi-  
 “ mas, ob quam condita Zingiberi præfertur.” *Hoffman.* p. 466.

1. In its taste it agrees much with Galanga minor, and also with Zingiber; but it has more of the camphire than the one, and is more disagreeable and less hot than the other. — 2. Both the simple water and oil of Zedoary smell of camphire, *Herm. M.S.* The oil is said to contain a kind of camphire in it. “ Zedoaria . . . constat sale volatili oleoso acriore penetrantiore, & spirituosi-  
 “ ore acoro, propterea se altius extendit.” *Herman. Cynos.* p. 13. The editor,

*Henningerus,*

*Henningerus*, adds, "Conf. Herman. H. L. B. sub titulo *Zingiber latifolium* sylvestre, ubi hanc plantam prolixè describit, & inter alia hæc de distillatione habet; sale volatili oleoso aromatico abundare hujus aromatis radicem probat inter alia ejus distillatio. Transmittit enim per alembicum aquam fragrantem, cum sufficiente oleo, cui, si recens fuerit destillata, innatat sal volatilis paucus, forma nivis aut camphoræ." And *Mr. Geoffroy*, vol. II. p. 152. says, "Zedoaria distillata cum aqua communi, oleum essentielle densum ac spissum suppeditat, quod in subtilis camphoræ speciem concrevit. Pollet igitur oleo essentiali tenuissimo, cum acido sale summo volatili conjuncto; ex quorum connubio tenuis hæc resina camphorata exurgit, multâ terrâ sepelita, e quâ ipsius energia pendet." But where does *Geoffroy* find an acid in camphire? "Zedoariæ graveolentiam camphoratam nonnulli ferre nequeunt. Hinc tussientium anxietates, & colicarum tormina exacerbata fuisse, usu largiori hujus radices observavimus." *Albin. M. S.* It is none of the most agreeable stomachics: bechic only in phlegmatic stuffings of the lungs; and unsafe in all hot, bilious, or inflammatory diseases. — 3. It is commended also in female obstructions, gripings, worms, lenteries, dropsies, agues, apoplexies, as a preservative against infection, a cure for stinking breath, &c.

"Zurumbeth Serapioni" (*de Simpl. c. 172.*) ex diversorum Arabum autoritate, excaesfacit & siccatur 2. (*Avicenna 3.*) Corpus impinguat; flatus discutit; odorem sumptorum alliorum, cæparum, & vini aufert; morsui venenosorum confert; alvum sistit; uteri apostemata resolvit; vomitum reprimat; & colicæ ventosæ confert. Nostræ ætatis medici contra pestilentis cœli contagia utuntur. . . Tussi à frigore causatæ proderit, si cum ovo forbili, vel cum vino sumatur. Sic & intinctum ad appetentiam excitandam, ex Zedoaria; galanga & aceto parant. Vinum etiam Zedoariatum Germani conficiunt. . . Ad frigidum & humidum ventriculum, contra venena, & pestis tempore utuntur." *B. Theat. p. 666.*

### S E C T. III.

It may be given in substance to ʒss: in infusion to ʒj. We keep no preparation of it; but it is an ingredient in the Aqua epidemia, Aqua theriacalis, Tinctura salutifera, Tinctura ad stomachicos, Electuarium e baccis lauri, Mithridatium & Theriaca (loco cost.) Magma Hedychroi pro Theriaca, & Acetum theriacale.

"Datur a gr. vij ad xv: in infusis ad ʒij: in decoctis ad ʒiv." *Herm. M. S.* "Exhibetur ipsa substantia a gr. vj ad ʒss, vel infusa ad ʒij, in vino, vel in aqua calida, ad modum potus theæ." *Geoff. ii. p. 153.*

## Z I N G I B E R.

### S E C T. I.

Zingiber, Zingiberi, *offic.* Zingiber, *B. P.* 35. *Theat.* 646. *J. B.* ii. 743. *R. H.* 1314. *Park.* 1612. *Clus. Exot.* 275. *Monard. Ind.* 311. Zingiber angustiore folio, scemina; utriusque Indiæ alumna, *Pluk. Alm.* 397? 317? Zinziber, *Ger.* 61. Zinziber fativum, foliis & radice tenuioribus, *H. Ox.* iii.



251. *Gingiber Garciae Clus. Exot.* 212. *Iris latifolia*, tuberosa, *Zingiber dicta*, flore albo, *H. Ox.* ii. 350. *Amomum*, scapo nudo, spica ovata, *H. Cliff.* 3. Ginger, (vide *Sloan. Cat. Jamaic.* p. 60. *Hist.* 163.)—The root is tuberos, jointed, and branched, of a whitish gray colour on the outside, yellow within, of a burning hot biting aromatic taste, and spicy fragrant smell.

“Radix est tuberosa, nodosa, ramosa, paululum compressa, substantiæ non-nihil fibrosæ pallidæ vel flavescentis, tenui pellicula subfusca obtectæ, qua spoliari solet dum recens est, antequam ad nos afferatur; sapore acerrimo, fervido, aromatico, instar piperis, odore fragrantissimo. Ex Sinarum imperio, Malabar, & Ceylan affertur, nec non etiam ex quibusdam Americæ provinciis. Sinensis minus fibrosæ est substantiæ, & præstantior censetur.”

*Geoff.* ii. 156. What I cultivate has a grey skin, and so thin that I do not see how it could be separated while recent, or when dried either.

It grows wild in many places of the East-Indies; and it is cultivated in every province; “nam quod sponte provenit flocci penditur:” the Malabar Ginger is most esteemed. It is easily propagated by the roots (as well as by the seed) which even here in a tan-bed increase greatly every summer. “Proximo anno a satu, radix eruitur denuo, ipsum scil. *Gingiber*. Vindemia ejus fit arefcentibus foliis, quod juxta initium Januarii accidere solet. Paulo exsiccata limo obducuntur, ne, evanescente nativa humiditate, teredine, cui alias maxime obnoxia sunt, afficiantur.” *R. H.* 1314.

*Don Francisco*, the Son of *Don Antonio de Mendoza*, Viceroy of New Spain, carried from the East-Indies, and planted in New Spain, Ginger, Cloves, Pepper, and other spiceries: but after his death they were neglected, and all lost, except the Ginger; which so prospered, that great quantities of it, both dry and green, are brought from America. Vide *Monardes*. Even before 1688 there came to Marseilles from Martinico, and other American isles, annually between 1000 and 1200 quintals of Ginger. Vide *Savary's Diction.* iii. 499. “France is almost entirely furnished with it from the Antilles.” *Idem*, ii. 299. “We have two sorts of Ginger, white and black: the white is the best, being the root only dried and cleansed; the other is the same scalded, and of a darker colour, more shriveled, and is less used in medicines. . . . Ginger is brought now-a-days chiefly from Jamaica and the Carribby islands, though it grows both in the East and West Indies.” *Mill. Bot.* p. 463.

It is called, by the Arabians, Persians, Turks, as *Garcias* informs us, *Gengibil*, whence comes *Zingiber*, and all its ancient as well as modern European names. Thus in Greek it is *Ζιγγιβερίς*, *Ζιγγιβερί*, *Ζιγγιβερί*: in Latin *Zingiber*, *Zingiberi*, *Gingiber*, *Zimpiberi*. “*Zingiber* Græcis voce barbara, Dioscoridi quidem *Ζιγγιβερίς*, Æginetæ etiam: Aëtio & Sethi *Ζιγγιβερί*: Galeno & Oribasio *Ζιγγιβερί*: quibusdam *Γιγγιβερί* dicitur. Latinis *Zingiber* & *Gingiber*: Plinio (l. 12. c. 7.) *Zimpiberi* & *Zingiberi*.” *B. Theat.* 646. This, with the use that has always been made of it, and Dioscorides's description, makes it evident that this is the true *Zingiber* of the ancients. “*Zinziberis* sui generis planta est, quæ plurima in Troglodytica Arabia nascitur. . . . Radiculas habet parvas, Cyperi modo candicantes, sapore piper imitantes, ac odoratas. Eligito quæ teredinem minime senserint. A quibusdam tamen ob id condiuntur, quod celeriter cariem sentiant, ac fistilibus in Italiam asportantur, cibus idoneæ, si modo cum suo condimento assumantur.” *Diosc.* l. 2. c. 190. p. 155. *N. B.* “Cauliculi clavati vix pedis altitudinem obtinent, &c. *Geoff.* ii. 157.”

## S E C T. II.

It is a very hot and yet agreeably stimulating diaphoretic and carminative, of great use in all cold phlegmatic and flatulent indispositions of the stomach and guts; called stomachic, cephalic, and alexipharmic; and commended in want of appetite, flatulent colics, palsies, agues, scurvy, &c.

“Calfacit potenter, sed non primo statim occurfu, adeoque partium est crassiorum, earumque non terrestrium sed aquearum, & consequenter humectantium, (see how *Galen* explains this, *Simpl.* l. 6. p. 47. *H.*) aperit, incidit, attenuat. Confert ventriculo, thoraci, aliisque visceribus; appetitum prostratum excitat; putredini ac maligniti humorum resistit. *Præp.* 1. Zingiber in India seu China conditum. 2. Conditum nostrate. 3. Confectio Zingiberis. 4. Zingiber laxativum. 5. Species Diazingiber. 6. Oleum stillatitium.” *Schroder.* 706. “Incidit, aperit, sudores movet, est stomachicum, carminativum, expectorationem promovet, valet ad febres præcipue intermittentes, scorbutum: præscribitur ordinarie reconvalescentibus.” *Nucl. Belg.* p. 314. “Vim habet calfacientem concoquentem alvum leniter emollientem, ac stomacho etiam utilem. Est & efficax adversus ea quæ pupillis caliginem offundunt. In antidota quoque additur, ac in univ-  
ersum piperis vires quadantenus æmulatur.” *Dioscorides*, l. c.

1. Ginger raises, and that too very soon, a strong, very pungent, and lasting heat in the mouth; yet, though this be even painful, it is so far from having any disagreeable taste, that it is one of the most common spiceries in the kitchen, and more used in food than in medicine. It is also fully as hot and biting, if not more so, when green, as when dried. — 2. Its acrimony is not volatile. It keeps very well. I have some of my own growth, now six years old; which, though not so plump by far as the Indian, but much wrinkled and softer, yet is far from being vapid, but very near as hot as ever, and not in the least worm-eaten or carious. Besides, it retains much of its taste even after baking or candying. Hence it heats and stimulates powerfully: and, although it does not appear to be purgative, yet it may promote the operation of cathartics, as well as correct their flatulency, by its stimulus, “comfortably warming the stomach, and thus invigorating its motions. Purgans imbecillum, seu ignavum & pigrum, acrioris permissione excitatur; ut rhabarbarum spicâ aut cinnamomo; senna Zingibere; agaricus & turbith Zingibere quoque, aut sale gemmeo; aloe asaro; &c.” *Fernel. Meth. Med.* l. 4. c. 7. p. 232. — 3. It is hotter than zedoary, and deserves better the name of a cordial, though not so diaphoretic. “Cum zedoaria convenit, excepto camphorato odore, hinc tanta vis alexipharmaca ipsi non inest. Gratius quidem est, sed acrius & calidius & magis desiccativum.” *Herman. Cynof.* p. 17. “Si teneræ & adhuc recentes radices edantur, alvum leniter emolliunt.” *Geoff.* l. c. who could eat them? “Zingiber oleum essentielle minus gratum & acerrimum distillatione suppeditat: pollet sale volatili, oleoso, fervido seu igneo principio turgido, a quo saporem, odorem, & vires obtinet.” *Geoff.* ii. 158.

“Zingiber recens ab Indianis habetur tanquam remedium præstantissimum, ad colicos dolores, coeliacam & lentericam passionem, diarrhœas diuturnas ex frigore natas, flatus, ventrisque tormina & alia hujusmodi: (a) Recens  
“ & ex-



“ & exsiccatum, ventriculum roborat, & concoctionem promovet: ventriculi  
 “ & pulmonum farctus abstergit & dissipat, supervacuo humore absumpto.  
 “ Cerebrum & memoriam roborando juvat: hebetudini etiam visus, quæ ab  
 “ humiditate oritur, prodest. Venerem stimulat & flatus discutit. Antidotis  
 “ admiscetur tanquam alexipharmacum. Sæpius adjungitur medicamentis  
 “ catharticis, ad eorum vim augendam, aut malitiam corrigendam. (β) Ea  
 “ tamen perpetuo adhibenda est cautela, ut qui sanguine sunt fervidiore, sive  
 “ sani sive ægrotantes, parcissime eo utantur; quia Zingiber omne, sive sic-  
 “ cum, sive recens, sive conditum, sanguinem accendit, & orificia venarum  
 “ aperit.” *Geoff. ii. 159.* All this, and a good deal more on this article, is  
 taken almost word for word from *R.H.* p. 1314 and 1315, without once men-  
 tioning his name; only transposing a little to cover the theft. For what is  
 before (α) *Mr. Ray* quotes *Bontius*, and for the cautela after (β) *Piso*.

“ Zingiberis radix, says *Galen*, (*Simpl. l. 6. p. 47. H.*) excalfacit valenter,  
 “ sed non primo statim occurso velut piper; unde sane & minus esse subtilium  
 “ partium, quam piper existimandum; siquidem in tenues solveretur partes,  
 “ & celerrime actu, ut illud, fieret calidum. Apparet enim illaborata, &  
 “ crassior adhuc quædam ei inesse substantia, nec ea sicca & terrestris, sed  
 “ humida potius atque aquea. Quo fit ut facile perforetur, cum scil. recre-  
 “ mentitia insit humiditas: neque enim quicquam eorum, quæ aut plane sicca  
 “ sunt, aut humida, sed elaboratam, & familiarem continent humiditatem,  
 “ tale aliquid patitur. Idem usu venit piperi longo. Atque huic est quod  
 “ diutius perseverat caliditas quæ proficiscitur a Zingibere aut pipere longo,  
 “ quam quæ ab albo aut nigro. Nam sicut ab aridis calamis, flamma simul  
 “ celerrime accenditur, & undequaque dispergitur, eundem in modum, quæ  
 “ a siccis potestate medicamenti editur caliditas; at quæ prodit ab humidiori-  
 “ bus, seu ligna sunt viridia, & tardius accenditur, & durat diutius. Ex quo  
 “ fit ut utriusque medicamenti diversus sit usus. Siquidem ubi totum corpus  
 “ celeriter excalfacere consilium est, ea tunc exhibenda sunt, quæ & celerrime  
 “ a caloris nostri contactu incalescant, & promptissime undequaque ferantur.  
 “ Verum ubi partem quamvis refrigeratam, recalfacere studemus, contra agen-  
 “ dum; nimirum, quæ tarde calefcentia plurimo tempore perdurent, ea præ-  
 “ bendo. Cæterum licet Zingiber & piper longum, hac ratione a nigro pipere  
 “ differant, non magna tamen est differentia. At nasturtium, napy, thapsia,  
 “ & agrestium columbarum sterces, majori tempore perfecte accenduntur, &  
 “ plurimo tempore perdurant.” Thus *Galen* philosophises. *Sed cui bono!*

### S E C T. III.

It may be given in substance to ʒj: in infusion to ʒj. It is brought can-  
 died from the Indies. Ginger is an ingredient in the Infusum Sennæ, Pulvis  
 Diasennæ, Pulvis Diaromatwn, Electuarium è Baccis Lauri, Electuarium Car-  
 diacum, Diascordium (tho' left out in edit. 1744.), Mithridatium, Theriaca.

“ Exhiberi potest per se in substantia a gr. v ad xv; sed rarissime datur  
 “ propter nimiam acrimoniam: in infusione vel decocto a ʒß ad ʒß; condi-  
 “ tum vero a ʒj ad ʒj.” *Geoff. ii. 159.*











